FIVE YEAR UPDATE

AGRICULTURAL WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

JUNE 2011

BEFORE THE BOARD OF DIRECTORS
OF THE
HILLS VALLEY IRRIGATION DISTRICT
COUNTIES OF FRESNO AND TULARE, STATE OF CALIFORNIA

RESOLUTION ADOPTING WATER MANAGEMENT PLAN AND AUTHORIZING SECRETARY TO FILE PLAN ON BEHALF OF THE DISTRICT WITH THE UNITED STATES DEPARTMENT OF INTERIOR BUREAU OF RECLAMATION.	)	RESOLUTION NO. 2012 - 4

WHEREAS, a five year update to the Hills Valley Irrigation District's WATER MANAGEMENT PLAN, has been prepared, presented to and discussed by the Board of Directors of the Hills Valley Irrigation District which defines water management, control and policies of the Hills Valley Irrigation District:

THEREFORE, BE IT RESOLVED, that the WATER MANAGEMENT PLAN prepared by the staff of the Hills Valley Irrigation District, is adopted as presented and discussed at a noticed meeting scheduled for this date, is deemed acceptable and the Board of Directors finds that adoption of same is in the best interest of the Hills Valley Irrigation District and its landowners.

RESOLVED FURTHER, that Dennis Keller, Secretary, is hereby authorized and directed to file said WATER MANAGEMENT PLAN on behalf of the Hills Valley Irrigation District with the U.S. Bureau of Reclamation as deemed acceptable to this Board of Directors and to execute such other documents as may be necessary to carry out the intent of the above resolution.

The foregoing Resolution was adopted at a regular meeting of the Board of Directors of the Hills Valley Irrigation District held on the 13th day of September, 2012, upon a motion of Director Schroeder and seconded by Director Archer, upon the following vote:

AYES: 2

NOES: 0

ABSENT: 1

APPROVED Dennis R. Keller
SECRETARY

DATED: September 13, 2012

CERTIFICATE OF SECRETARY

I, Dennis R. Keller, Secretary of the Hills Valley Irrigation District, do hereby certify that the above is a true and correct copy of a Resolution made, passed and adopted by the Board of Directors of said District, at a Regular meeting of said Board duly called and held on the 13th day of September, 2012.

Dennis R. Keller

SECRETARY

INTRODUCTION

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

INTRODUCTION
WATER MANAGEMENT PLAN
HILLS VALLEY IRRIGATION DISTRICT

This Water Management Plan (Plan) was prepared to comply with and satisfy the "Criteria for Evaluating Water Conservation Plans" (Criteria). These Criteria were developed by the United States Bureau of Reclamation (USBR) in response to the Central Valley Project Improvement Act of 1992 (CVPIA) and updated in 2008.

The Criteria identified items that have and will be evaluated in the 5-year updates of Water Management Plans prepared by districts in the Mid-Pacific Region. These Criteria were required by Public Law 102-575 Section 3405(e). This section of law also requires that all existing Water Management Plans be reviewed for adequacy.

Dennis R. Keller/James H. Wegley, Consulting Engineers, assisted Hills Valley Irrigation District in the preparation of this 5-year update of their Plan.

HILLS VALLEY IRRIGATION DISTRICT
Water Management Plan
2008 Criteria

Date of first draft – JUNE 2010
Date of final – JULY 14, 2011

Index

Section 1: Description of the District

District Name: *Hills Valley Irrigation District*

Contact Name: Dennis R. Keller

Title: Engineer-Manager

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E-mail: kelweg1@aol.com

Web Address

A. History

1. Date district formed: 1948 *Date of first Reclamation contract*: 1976
Original size (acres): 5,152 *Current year (last complete calendar year)*: 2009

The Hills Valley Irrigation District (District) lies on the upper fringe of the San Joaquin Valley (See Plate 1). During the early years of the development of the area, ranchers, a few miners and lumbermen passed through the area, but because of the lack of resources, especially water, there were no developed settlements. The lands were used primarily for the grazing of livestock and occasionally for the production of dry farmed grains. In the 1950's, with the development of more sophisticated well drilling techniques and irrigation systems, the lands began to be developed for irrigation. This irrigated area was increased when limited surface water supplies became available through the Cross Valley Exchange Program and temporary Friant Division, CVP water purchases.

The District was initially formed in 1948 and, since that time, the land use has been transformed to a highly developed irrigated agricultural area comprised of permanent plantings, primarily citrus in nature.

The District started receiving federal water in October of 1969 when it entered into a short-term water service contract with the U. S. Bureau of Reclamation. The contract made federal water available to the District only in those years in which surplus Project water from

Millerton Reservoir existed, which was when more than the obligated amount to the Friant Division, CVP long-term contractors was available.

In May of 1976, the District entered into a long-term water service contract with the U.S. Bureau of Reclamation. The contract was for federal water through the Delta Division of the Central Valley Project and formed the basis for an exchange agreement with the Arvin-Edison Water Storage District (AEWSD), the agreement provided for an exchange of contract water between the two districts using the Friant-Kern and the Cross Valley Canals.

The contract provided for a maximum of 2,146 acre-feet to be transported annually through the State Water Project facilities (San Luis Unit/California Aqueduct) to the Cross Valley Canal. AEWSD would take delivery of District water from the Cross Valley Canal and the District would take delivery of AEWSD water from the Friant-Kern Canal.

An amendatory contract was subsequently negotiated with the Bureau of Reclamation to increase the water supply allocation to 3,346 acre-feet annually, an increase of 1,200 acre-feet. The contract amendment was executed in October, 1987. This contract has since been renewed on an interim basis awaiting the certification of the Programmatic Environmental Impact Report on the CVPIA.

A short-term transfer contract was negotiated with Kern-Tulare Water District. This contract was executed in November of 1984 and provided for an annual water supply of 1,400 acre-feet. This agreement terminated in 1995.

In June of 1993, Atwell Island Water District, along with the District, entered into a supplemental contract for Cross Valley Canal water with the County of Tulare. Both districts acquired an additional 954 acre-feet of surface water supply and the District has since acquired

all but 50 acre-feet annually of the water supply previously allocated to the Atwell Island Water District.

Surface water is delivered by the District to lands within two (2) improvement districts (**See Attachment A**). Improvement District No. 1 covers 1,277 gross acres, Improvement District No. 2 contains 2,585 gross acres and the remaining 452 acres within the District are outside of any improvement district. The majority of the holdings are of 120 acres or less and there are 34 different landowners within the District. There are approximately fourteen residential dwellings within the District boundaries.

2. Current size, population, and irrigated acres

	(enter data year)
Size (acres)	4,314
Population served	0
Irrigated acres	3,560

3. Water supplies received in current year

Water Source	*AF*
Federal urban water (Tbl 1)	
Federal agricultural water (Tbl 1)	5,352
State water (Tbl 1)	
Other Wholesaler (define) (Tbl 1)	
Local surface water (Tbl 1)	
Upslope drain water (Tbl 1)	
District ground water (Tbl 2)	
Banked water (Tbl 1)	
Transferred water (Tbl 6)	
Recycled water (Tbl 3)	
Other (see below) (Tbl 1)	500
Total	5,852

"Other" District water is defined as delivered non-Project water made available through an exchange between one specific District landowner and the Ivanhoe Irrigation District. The District accounts for this water within their delivery quantities, however, the "other" water that is

delivered through the District's distribution system is to lands currently ineligible to receive Project water.

4. Annual entitlement under each right and/or contract

	AF	*Source*	*Contract #*	*Availability period(s)*
Reclamation Urban AF/Y				
Reclamation Agriculture AF/Y	6,304	Cross Valley Canal – CVP	14-06-200-8446A-IR13 and Tulare County	Year round
Other AF/Y				
Other AF/Y				

5. Anticipated land-use changes

None.

6. Cropping patterns (Agricultural only)

List of current crops (crops with 5% or less of total acreage) can be combined in the 'Other' category.

Original Plan (1998)		*Previous Plan (2003)*		*Current Plan*	
Crop Name	*Acres*	*Crop Name*	*Acres*	*Crop Name*	*Acres*
Citrus	2,444	Oranges	2,069	Oranges/Tangerines	2,718
Grapes	494	Prunes & Plums	312	Prunes & Plums	379
		Table Grapes	176		
Other (<5%)	415	*Other (<5%)*	251	*Other (<5%)*	401
Total	3,353	*Total*	2,808	*Total*	3,498

(See Planner, Chapter 2, Appendix A for list of crop names)

The total acreage of 3,498, listed in the table above, is the current cropped portion of the total irrigated acres (3,560) listed in Section 1.A.2. The remaining 62 acres were idle/fallow during the current year.

7. Major irrigation methods (by acreage) (Agricultural only)

Original Plan (1998)		*Previous Plan (2003)*		*Current Plan*	
Irrigation Method	*Acres*	*Irrigation Method*	*Acres*	*Irrigation Method*	*Acres*
Not Listed		Trickle/Surface	2,151	Micro Sprinkler	3,341
		Trickle/Spray	240	Graded Surface	117
		Graded Surface (1/2 mile)	260	Irrigated Pasture	40
Other		*Other*	157	*Other*	
Total		*Total*	2,808	*Total*	3,498

(See Planner, Chapter 2, Appendix A for list of irrigation system types)

The total acreage of 3,498, listed in the table above, is the current cropped portion of the total irrigated acres (3,560) listed in Section 1.A.2. The remaining 62 acres were idle/fallow during the current year (See Plate 2 for District Applied Irrigation Water Supply Methods Map).

B. Location and Facilities

See **Attachment A** for points of delivery, turnouts (internal flow), and outflow (spill) points, measurement locations, conveyance system, storage facilities, operational loss recovery system, wells, and water quality monitoring locations

1. Incoming flow locations and measurement methods

Location Name	*Physical Location*	*Type of Measurement Device*	*Accuracy*
Friant-Kern Canal	FKC Mile Post 41.156	Propeller Meters	±2%

2. Current year Agricultural Conveyance System

Miles Unlined - Canal	*Miles Lined - Canal*	*Miles Piped*	*Miles - Other*
None	None	11.4	None

3. Current year Urban Distribution System

Miles AC Pipe	*Miles Steel Pipe*	*Miles Cast Iron Pipe*	*Miles - Other*
N/A	N/A	N/A	N/A

4. Storage facilities (tanks, reservoirs, regulating reservoirs)

Name	*Type*	*Capacity (AF)*	*Distribution or Spill*
ID #1 Basin	Regulating	15	Distribution
Anchor Reservoir	Regulating	1.6	Distribution
American Reservoir	Regulating	6.1	Distribution

5. Outflow locations and measurement methods (Agricultural only)
Provide this information in Section 2 F.

6. Description of the agricultural spill recovery system

None.

7. Agricultural delivery system operation (check all that apply)

On-demand	*Scheduled*	*Rotation*	*Other (describe)*
	✓		

8. Restrictions on water source(s)

Source	*Restriction*	*Cause of Restriction*	*Effect on Operations*
USBR	CVC in-delta declaration and ability to move water south of the delta	delta pumping	Increase in private groundwater pumping in addition to increased purchases from other FKC Contractors

9. Proposed changes or additions to facilities and operations for the next 5 years

The District is planning to purchase and install a traveling water screen at the District's Friant-Kern Canal turnout in order to address ongoing milfoil issues that continue to cause disruptions in deliveries to District growers.

C. Topography and Soils

1. Topography of the district and its impact on water operations and management

The lands in the Hills Valley Irrigation District area are on gently rolling hills transected by several intermittent streams that have developed small alluvial fans. Some of the area is on colluvial material that slid down from steeper slopes. The area is generally bounded by hills that rise steeply from the valley floor. The lands range in elevation from a high of approximately 900 feet down to about 500 feet. The slopes vary from about 30 to less than 1 percent.

2. District soil association map (Agricultural only)

See **Attachment B**, District Soils Map

The soils in the District area are typical of those found along the eastern edge of the San Joaquin Valley. They are usually of limited depth and overlie a dense subsurface soil. This subsurface material may be a highly compacted and very dense soil or a decomposed granite material. Due to the shallow amount of soil over the impermeable subsoil, the material must be ripped prior to the planting of trees. Ripping of the soil breaks up this barrier and improves drainage. Granite is also prevalent in the area at very shallow depths with rock outcroppings being visible at the surface in many locations.

The U.S. Bureau of Reclamation has prepared a land classification report for a portion of the District. This report was completed in 1982 and updated in 1992. From the 1982 report the Bureau determined the following acreage for each land class:

Class 1	1,109	acres
Class 2	799	acres
Class 3	349	acres
Class 4	156	acres
Class 6	1,649	acres

The total acreage listed in the Bureau report differ from that shown above, since the Bureau's analysis consisted of lands within both the Tri-Valley Water District and the District.

The soil survey for the District is included in the Soil Survey of Eastern Fresno Area, California, issued October, 1971, by the U.S. Department of Agriculture, Soil Conservation Service. The Eastern Fresno Area consists of three main physiographic sections. These are Soils of the Valley Basin, Soils of the Eastside Valley Alluvial Plains and Soils of the Uplands of the Sierra Nevada Foothills. The District area does not contain soils consistent with the Soils of the Valley Basin region. The location and distribution of each of the specific soil series is shown on **Attachment B**.

Representative soils of the Eastside Valley Alluvial Plains within the District include Hanford, Greenfield and San Joaquin. The Hanford soils are recent alluvial deposits which are extensive and distributed throughout the Eastside Valley Alluvial Plains. They are excessively drained to somewhat poorly drained soils of recent alluvial fans and flood plains. The soils of this association are on benches in river valleys and on flood plains of minor streams. They formed in recent alluvium derived mainly from granitic rock.

Hanford soils are deep, permeable, light brown or pale brown and are neutral in reaction. They range from coarse sandy loam to fine sandy loam in texture. In places, Hanford soils are underlain by loose gravel, by a sandy substratum, or by an older soil at a depth of more than 30 inches. The Hanford soils are well suited to irrigated alfalfa, cotton, field corn, table grapes, wine grapes, raisin grapes, peaches and plums.

Greenfield soils in this association are on young alluvial plains formed by deposits from small streams that drained the Sierra Nevada foothills. Others are on wind-lain material blown

from the sandier alluvial areas and from dry channels by prevailing northwesterly winds. They are formed on stratified alluvial material.

Greenfield soils are brown to pale brown, generally are neutral in reaction and have a sandy loam surface layer. The subsoil is brown or yellowish-brown, slightly finer textured and slightly more compact material than that in the surface layer. In some places soils are deep, but in large areas they are moderately deep over compact, weakly cemented, slowly permeable, sandy material.

San Joaquin soils in this association have a hardpan that is cemented with iron and silica. The hardpan occurs at a depth of 12 to 48 inches and is impermeable to roots and water. If the hardpan is not broken, the soils are waterlogged, both in wet years and when over-irrigated. In dry years, crops are likely to be damaged by drought. Soils in this association formed in material from old granite alluvium.

The San Joaquin soils have a surface layer of brown to reddish-brown, slightly acid to medium acid loam to sandy loam. They have a thin clay subsoil, about 8 inches thick, that rests abruptly on a cemented hardpan at a depth of 18 to 36 inches. The hardpan is 6 to 24 inches thick and overlies sandy or silty material.

A minor soil of this association is the Cometa. The Cometa soils occupy naturally eroded, hilly to undulating borders of the terraces.

Soils in this association that are not irrigated have been used for dry farmed barley. After deep ripping the hardpan and leveling the surface, the soils are suited to cotton, grain sorghum, sugar beets, orchard crops and vineyards. The soils near the foothills are in groves of citrus. Good to very good irrigated pastures have also been developed.

Representative soils of the Soils of the Uplands of the Sierra Nevada Foothills within the District include Vista and Fallbrook soils. Soils of this association have formed mainly from granitic rock, principally quartz diorite. They vary in content of iron bearing minerals. The topography ranges from rolling to hilly areas that have some outcrops of rock to steep, rocky areas.

The Vista soils have a surface layer of pale-brown, neutral to slightly acid course sandy loam that is massive and hard when dry. The subsoil is weakly developed. It consists of brown to pale-brown, slightly acid coarse sandy loam that is massive or has weak structure when dry and grades abruptly to weathered parent rock. Depth to weathered parent rock ranges from 1 to 3 feet.

The Fallbrook soils generally are somewhat deeper, are redder in color and have a more strongly developed subsoil than the Vista soils. The surface layer is similar to that of the Vista soils, but it is brown in color and in places is sandy loam. The subsoil is reddish brown, blocky sandy clay loam or clay loam that is neutral to slightly acid. It is underlain by weathered parent rock that generally contains more dark-colored, iron bearing minerals than the material from which Vista soils formed. A minor soil of this association is the Vista soil. The Vista soils are on alluvium in narrow, small stream valleys.

The soils in this association are used mainly for range. Forage yields are good in years of favorable moisture and poor years of unfavorable moisture. Citrus is grown in areas where irrigation water is available and where the frost hazard is low.

3. Agricultural limitations resulting from soil problems (Agricultural only)

Soil Problem	*Estimated Acres*	*Effect on Water Operations and Management*
Salinity	None	
High-water table	None	
High or low infiltration rates	None	
Other (define)	None	

D. Climate

1. General climate of the district service area

The climate of the District is typical of the San Joaquin Valley, being semiarid and characterized by mild winters and hot, dry summers. Mean annual temperature at Visalia is 62.5 degrees Fahrenheit. This station is approximately 24 miles south of the District area. The average annual minimum and maximum temperatures are 47.0 and 75.9 degrees, respectively.

The average yearly rainfall for the District area is 11.03 inches, based on records published by the National Oceanic and Atmospheric Administration for the recording station in Visalia. Rain falls principally during the period December to April.

Many of the crops in this area are crops that are particularly sensitive to frost. The most favored areas for citrus and other frost-sensitive crops are the tops and slopes of some of the foothills where there is better air drainage. The area is in a thermal belt, but there are cold areas in some of the low lands and depressions.

The climatological normals for the District area presented in the preceding tables were obtained from the California Irrigation Management Information System (CIMIS) station number 142 at Orange Cove, for the 10-year period of 2001-2010, inclusive. The climatological extremes for the District area were obtained from the CIMIS station number 142 at Orange Cove, for the period of 2001-2010, inclusive.

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Avg Precip.	1.70	1.94	1.31	1.39	0.57	0.09	0.16	0.09	0.09	0.58	0.72	2.64	11.26
Avg Temp.	45.1	49.3	54.2	58.0	68.5	76.3	81.9	78.8	73.2	62.5	52.2	45.8	62.1
Max. Temp.	56.0	61.4	67.8	71.3	83.0	90.4	97.2	94.8	89.6	77.5	65.5	56.3	75.9
Min. Temp	35.5	37.9	40.2	42.8	49.8	55.7	62.7	60.0	55.3	47.9	40.3	36.2	47.0
ETo	1.19	3.44	3.64	4.87	7.46	8.61	9.00	8.01	6.02	3.71	1.85	1.07	4.91

Weather station ID CIMIS #142 *Data period: Year* 2001 *to Year* 2010

Average wind velocity 3.9 mph *Average annual frost-free days:* 260

2. Impact of microclimates on water management within the service area

Demand exists for water during the winter months for frost protection purposes. This demand is independent of the evapotranspiration demand.

E. Natural and Cultural Resources

1. Natural resource areas within the service area

Name	*Estimated Acres*	*Description*
None	None	

2. Description of district management of these resources in the past or present

Not Applicable

3. Recreational and/or cultural resources areas within the service area

Name	*Estimated Acres*	*Description*
None	None	

F. Operating Rules and Regulations

1. Operating rules and regulations

See **Attachment C**, District Rules and Regulations (water related)

2. Water allocation policy (Agricultural only)

When the demand for water is greater than the available supply, water other than assigned supplies shall be distributed equitably among those who have an entitlement allocation and have filed an application in accordance with paragraph 1 by the following method: California State Water Code Section 22250 which reads in part as follows: "All water distributed by districts for irrigation purposes shall be apportioned ratably to each landowner upon the basis of the ratio which the last assessment against his land for district purposes bears to the whole sum assessed in the district for district purposes.

3. Official and actual lead times necessary for water orders and shut-off (Agricultural only)

Orders for turn on, turn off, increase or decrease of water shall be made before 9:00 A.M. on the day before the change is required. No water orders will be accepted on Sunday and only emergency changes will be made on Sunday. A water user desiring water for Monday must place his order on or before Saturday at 8:00 A.M. After water has been turned on it shall run continuously day and night until ordered off and no turn on will be made for less than a 24 hour period. The 24 hour notice for water to be turned off may be waived in case of emergency. On the day the order is put into effect, the ditchtender will turn on or off as directed, at the time he passes the point of delivery on his regular run for that day. Orders for a certain hour cannot be accepted. A change of water from one delivery point to another may be made without a 24 hour notice provided such change is requested to be made during the ditchtenders regular run for that day.

4. Policies regarding return flows (surface and subsurface drainage from farms) and outflow (Agricultural only)

See **Attachment M**, Page 7, Item 2(b) of Agricultural Water Service Contract:

"The District shall have the right to the use of all waste seepage and return flow water that escapes or is discharged beyond Water user's recovery facilities, if any, and nothing contained in this contract shall be construed as an abandonment or relinquishment by the District of the right to the use of any such water."

5. Policies on water transfers by the district and its customers

All actions involving the transfer of water in/out of the District must be approved by the District Board of Directors. For special circumstances, in which water is transferred into the District on behalf of an individual landowner, such transfers do not need to be approved by the Board of Directors, but must be approved by the District Engineer-Manager for the coordination of the delivery of said waters.

Transfers between landowners within the District may be accomplished without Board approval. Delivery of the water, however, must be coordinated with the District Engineer-Manager and may be denied based on capacity constraints within the distribution system. The District also allows the transfer of water between parcels, which are jointly owned by the same individual/entity, if capacity is available within the distribution system.

G. Water Measurement, Pricing, and Billing

1. Agricultural Customers

a. Number of farms 17

b. Number of delivery points (turnouts and connections) 34

c. Number of delivery points serving more than one farm 0

d. Number of measured delivery points (meters and measurement devices) 34

e. Percentage of delivered water that was measured at a delivery point 99

f. Delivery point measurement device table (Agricultural only)

Measurement Type	*Number*	*Accuracy (+/- %)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
Orifices					
Propeller meter	34	±2%	Monthly	36	12
Weirs					
Flumes					
Venturi					
Metered gates					
Acoustic doppler					
Other (define)					
Total					

2. Urban Customers

This section was intentionally left blank because the District does not have urban customers.

a. *Total number of connections* _____

*b. Total number of metered connections*_____

c. Total number of connections not billed by quantity _____

d. Percentage of water that was measured at delivery point _____

e. Percentage of delivered water that was billed by quantity _____

f. Measurement device table

Meter Size and Type	*Number*	*Accuracy (+/-percentage)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
5/8-3/4"					
1"					
1 ½"					
2"					
3"					
4"					
6"					
8"					
10"					
Compound					
Turbo					
Other (define)					
Total					

3. Agriculture and Urban Customers

a. Current year agriculture and /or urban water charges - including rate structures and billing frequency

Water rates for the District vary considerably each year, dependent upon supply availability and source. The current-year water rate is $222 per acre foot, which includes $180 for the canal-side cost of the water, plus an additional $42 for the operational, pumping and watermaster costs associated with the delivery of the water.

b. Annual charges collected from customers (current year data)

Fixed Charges			
Charges ($ unit)	*Charge units ($/acre), ($/customer) etc.*	*Units billed during year (acres, customer) etc.*	*$ collected ($ times units)*
$20.40	$/Acre	Acres	$75,715.92
$84.60	$/Acre	Acres	$108,273.61
$7.00	$/Acre	Acres	$15,723.47

Volumetric charges			
Charges ($ unit)	*Charge units ($/AF), ($/HCF), etc.*	*Units billed during year (AF, HCF) etc.*	*$ collected ($ times units)*
$222.00	$/Acre Foot	5,852 AF	$1,299,144

See **Attachment D**, District Sample Bill

c. Water-use data accounting procedures

Each District turnout meter is read and recorded on a monthly basis. The monthly recordings are entered into individual account record sheets and summarized on an accumulative basis to the District's General Ledger. All water accounting for the District is accomplished utilizing a computer software program. Records are maintained at the District office.

H. Water Shortage Allocation Policies

1. Current year water shortage policies or shortage response plan - specifying how reduced water supplies are allocated

See **Attachment E**, District Agricultural Water Service Contract In-Lieu of Water Shortage Plan

Water shortages are prorated between the entitlement holders based on a ratio of their contract entitlement to the total District entitlement. **Attachment M** contains a copy of the typical agreement in effect in 2009 between an entitlement holder and the District.

2. Current year policies that address wasteful use of water and enforcement methods

See **Attachment M**, Page 7, Item 2(b) of Agricultural Water Service Contract:

"The District shall have the right to the use of all waste seepage and return flow water that escapes or is discharged beyond Water user's recovery facilities, if any, and nothing contained in this contract shall be construed as an abandonment or relinquishment by the District of the right to the use of any such water."

Section 2: Inventory of Water Resources

A. Surface Water Supply

1. Acre-foot amounts of surface water delivered to the water purveyor by each of the purveyor's sources

2009 Month	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (See Below) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
Method							
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	9	0	0	0	0	0	9
April	459	0	0	0	0	0	459
May	630	0	0	0	0	0	630
June	859	0	0	0	0	0	859
July	1,141	0	0	0	0	0	1,141
August	949	0	0	0	139	0	1,088
September	616	0	0	0	361	0	977
October	413	0	0	0	0	0	413
November	197	0	0	0	0	0	197
December	79	0	0	0	0	0	79
TOTAL	5,352	0	0	0	500	0	5,852

2. Amount of water delivered to the district by each of the district sources for the last 10 years

Year	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (See Below) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
2000	3,745	0	0	0	0	0	3,745
2001	4,777	0	0	0	0	0	4,777
2002	4,531	0	0	0	300	0	4,831
2003	3,780	0	0	0	487	0	4,267
2004	4,763	0	0	0	0	0	4,763
2005	4,242	0	0	0	0	0	4,242
2006	4,766	0	0	0	0	0	4,766
2007	4,769	0	0	0	525	0	5,294
2008	3,960	0	0	0	1,032	0	4,992
2009	5,352	0	0	0	500	0	5,852
Total	44,685	0	0	0	2,844	0	47,529
Average	4,469	0	0	0	284	0	4,753

B. Ground Water Supply

1. Acre-foot amounts of ground water pumped and delivered by the district

2009 Month	District Groundwater (acre-feet)	Private Groundwater *(acre-feet)
Method		
January	0	112
February	0	255
March	0	373
April	0	0
May	0	1,449
June	0	1,811
July	0	2,338
August	0	1,048
September	0	117
October	0	0
November	0	0
December	0	0
TOTAL	0	7,503

*normally estimated

2. Ground water basin(s) that underlies the service area

Name	*Size (Square Miles)*	*Usable Capacity (AF)*	*Safe Yield (AF/Y)*
Kings Sub-Basin (5-22.08)	1,530	93,000,000	7,700

3. Map of district-operated wells and managed ground water recharge areas

As stated previously, the District does not own or operate any groundwater extraction wells. It is the responsibility of each landowner to address any irrigation demand not met through the District's surface water deliveries.

4. Description of conjunctive use of surface and ground water

Farm operators utilize available groundwater to supplement delivered surface water.

5. Ground Water Management Plan

See **Attachment G**, 2009 OCID Ground Water Management Plan

In 1997, the District signed a Memorandum of Understanding (MOU) with Orange Cove Irrigation District (OCID) to become a plan participant in OCID's Groundwater Management Plan. OCID's Groundwater Management Plan was last updated in 2006.

6. Ground Water Banking Plan

The California Water Service Company is a municipal provider to the both the City of Visalia and the City of Bakersfield. As a part of the Bakersfield Division Operation, a groundwater bank is operated utilizing surface water supplies available to the Bakersfield Division. It was the objective of the Company to move up to 10,000 acre-feet of their banked supply into the Visalia Division to bolster the groundwater in the Visalia Division service area. Negotiations were conducted with several parties attempting to put together a workable program and one in which the participants could economically afford to participate. Each of these efforts failed to result in an approved program.

A proposal was put forth by the District in which water would be made available by the District from various sources for import for the benefit of the Visalia Division service area in exchange for a portion of the Kern County banked supply to be made available on a call basis to the District, particularly during years of either hydrologic deficiency or problems with diversion of the District's contract supply from the Sacramento-San Joaquin Rivers delta. This program has been put into place and while it is not a groundwater banking program for the District, the program is made available as a result of groundwater banking on the Kern River fan. Copies of the proposal implementation documents can be made available upon request.

In 2009, the District moved 1,115 acre-feet from the Kern Basin to the District. The exchange program is capped at 10,000 acre-feet and is currently limited to a seven (7) year period of time.

C. Other Water Supplies

1. "Other" water used as part of the water supply

2009 Month	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (See Below) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
Method							
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	9	0	0	0	0	0	9
April	459	0	0	0	0	0	459
May	630	0	0	0	0	0	630
June	859	0	0	0	0	0	859
July	1,141	0	0	0	0	0	1,141
August	949	0	0	0	139	0	1,088
September	616	0	0	0	361	0	977
October	413	0	0	0	0	0	413
November	197	0	0	0	0	0	197
December	79	0	0	0	0	0	79
TOTAL	5,352	0	0	0	500	0	5,852

As stated previously in Section 1.A.3: "Other" District water is defined as delivered non-Project water made available through an exchange between one specific District landowner and the Ivanhoe Irrigation District. The District accounts for this water within their delivery quantities, however, the "other" water that is delivered through the District's distribution system is to lands currently ineligible to receive Project water.

D. Source Water Quality Monitoring Practices

1. Potable Water Quality (Urban only)

Not Applicable

2. Agricultural water quality concerns: *Yes* _____ *No* ✓
(If yes, describe)

3. *Description of the agricultural water quality testing program and the role of each participant, including the district, in the program*

Individual landowners are signator to the Kings Sub-watershed of the Southern San Joaquin Valley Water Quality Coalition.

4. *Current water quality monitoring programs for surface water by source (Agricultural only)*

There is currently one (1) water quality sampling and monitoring program conducted on waters related to the District. The effort is a four-entity program conducted on waters in the Friant-Kern Canal. A sample is taken monthly, year-round, on which tests are run to determine suitability and treatability.

E. Water Uses within the District

1. *Agricultural*

2009 Crop Name	**Area** (crop acres)	**Crop ET** (AF/Ac)	**Leaching Requirement** (AF/Ac)	**Cultural Practices** (AF/Ac)	**Effective Precipitation** (AF/Ac)	**Appl. Crop Water Use** (acre-feet)
Almonds	79	2.80	0.02	0.00	0.30	199
Grapes (Table)	38	3.80	0.02	0.00	0.20	138
Lemons & Limes	24	2.90	0.01	0.25	0.40	66
Olives	120	2.80	0.02	0.00	0.40	290
Oranges/Tangerines	2,538	2.90	0.01	0.25	0.40	7,005
Peaches	57	3.70	0.02	0.00	0.40	189
Pistachios	18	2.80	0.02	0.00	0.30	45
Prunes & Plums	379	3.70	0.02	0.00	0.40	1,258
Idle	220	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
Crop Acres	3,473					9,191

Total Irrig. Acres 3,473 (If this number is larger than your known total, it may be due to double cropping)

2. Types of irrigation systems used for each crop in current year

Crop name	*Total Acres*	*Level Basin - acres*	*Furrow - acres*	*Sprinkler - acres*	*Low Volume - acres*	*Multiple methods -acres*
Almonds	79		79			
Grapes (Table)	38		38			
Irrigated Pasture	40	40				
Lemons & Limes	49				49	
Olives	120				120	
Oranges/Tangerines	2,718				2,718	
Peaches	57				57	
Pistachios	18				18	
Prunes/Plums	379				379	

3. Urban use by customer type in current year

Not Applicable

4. Urban Wastewater Collection/Treatment Systems serving the service area – current year

Not Applicable

5. Ground water recharge/management in current year (Table 6)

None

6. Transfers and exchanges into or out of the service area in current year (Table 6)

From Whom	*To Whom*	*AF*	*Use*
Arvin-Edison Water Storage District	Hills Valley Irrigation District	145	Agriculture to Agriculture
Arvin-Edison Water Storage District	Hills Valley Irrigation District	830	Agriculture to Agriculture
Arvin-Edison Water Storage District	Hills Valley Irrigation District	1,314	Agriculture to Agriculture
Ivanhoe Irrigation District	Hills Valley Irrigation District	500	Agriculture to Agriculture
Lewis Creek Water District	Hills Valley Irrigation District	3	Agriculture to Agriculture
Lindsay-Strathmore Irrigation District	Hills Valley Irrigation District	953	Agriculture to Agriculture
Lindsay-Strathmore Irrigation District	Hills Valley Irrigation District	1,030	Agriculture to Agriculture
Lindsay-Strathmore Irrigation District	Hills Valley Irrigation District	425	Agriculture to Agriculture
Porterville Irrigation District	Hills Valley Irrigation District	1,494	Agriculture to Agriculture

7. *Trades, wheeling, wet/dry year exchanges, banking or other transactions in current year (Table 6)*

From Whom	*To Whom*	*AF*	*Use*
None			

8. *Other uses of water in current year*

None

F. Outflow from the District (Agricultural only)

Districts included in the drainage problem area, as identified in "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)," should also complete Water Inventory Table 7 and Appendix B (include in plan as Attachment L)

See Facilities Map, **Attachment A**, for the location of surface and subsurface outflow points, outflow measurement points, outflow water-quality testing locations

1. *Surface and subsurface drain/outflow in current year*

The District did not have any surface and/or subsurface drainage/outflow during 2009 other than the leaching fraction which was not recaptured by District growers. If maintenance on the distribution system is required, water is relieved from the distribution system back into the Friant-kern Canal for rediversion and beneficial use by others. Relief piping and valving was designed and constructed as a part of the system to accomplish this procedure.

2. *Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program*

Not Applicable

3. *Outflow (surface drainage & spill) Quality Testing Program*

Not Applicable

Outflow (subsurface drainage) Quality Testing Program

Not Applicable

4. Provide a brief discussion of the District's involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants that would significantly degrade water quality in the receiving surface waters.

Individual landowners are signator to the Kings Sub-watershed of the Southern San Joaquin Valley Water Quality Coalition.

G. Water Accounting (Inventory)

1. Water Supplies Quantified

a. Surface water supplies, imported and originating within the service area, by month (Table 1)

See Section 5, Table 1.

b. Ground water extracted by the district, by month (Table 2)

See Section 5, Table 2.

c. Effective precipitation by crop (Table 5)

See Section 5, Table 5.

d. Estimated annual ground water extracted by non-district parties (Table 2)

See Section 5, Table 2.

e. Recycled urban wastewater, by month (Table 3)

See Section 5, Table 3.

f. Other supplies, by month (Table 1)

See Section 5, Table 1.

2. Water Used Quantified

a. Agricultural conveyance losses, including seepage, evaporation, and operational spills in canal systems (Table 4) or
Urban leaks, breaks and flushing/fire uses in piped systems (Table 4)

See Section 5, Table 4.

b. Consumptive use by riparian vegetation or environmental use (Table 6)

See Section 5, Table 6.

c. Applied irrigation water - crop ET, water used for leaching/cultural practices (e.g., frost protection, soil reclamation, etc.) (Table 5)

See Section 5, Table 5.

d. Urban water use (Table 6)

See Section 5, Table 6.

e. Ground water recharge (Table 6)

See Section 5, Table 6.

f. Water exchanges and transfers and out-of-district banking (Table 6)

See Section 5, Table 6.

g. Estimated deep percolation within the service area (Table 6)

See Section 5, Table 6.

h. Flows to perched water table or saline sink (Table 7)

See Section 5, Table 7.

i. Outflow water leaving the district (Table 6)

See Section 5, Table 6.

j. Other

None.

3. Overall Water Inventory

a. Table 6

See Section 5, Table 6.

H. Assess Quantifiable Objectives:

Identify the Quantifiable Objectives that apply to the District (Planner, chapter 10) and provide a short narrative describing past, present and future plans that address the CALFED Water Use Efficiency Program goals identified for the District.

The District has been identified as having lands within its boundary that are subject to quantifiable objectives. The identified quantifiable objectives address providing improved long-term diversion flexibility to increase the water supply for beneficial uses and to decrease flows to salt sinks to increase the water supply for beneficial uses.

In addition to importing surface water for irrigation and groundwater recharge purposes, District growers have improved on-farm irrigation systems to the extent that in excess of 97 percent of these systems are permanent, low volume systems. This has resulted in reduced losses to the soil mantle outside of the root zone. Resultant water savings have first been dedicated to improving crop yields with the periodic residual being the negotiating tool to allow the District to deal with reduced water supplies resulting from settlement of the San Joaquin River litigation and diversion reductions from the Sacramento-San Joaquin Rivers delta.

Section 3: Best Management Practices (BMPs) for Agricultural Contractors

A. Critical Agricultural BMPs

1. *Measure the volume of water delivered by the district to each turnout with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6%*

Number of turnouts that are unmeasured or do not meet the standards listed above: 0

Number of measurement devices installed last year: 0

Number of measurement devices installed this year: 0

Number of measurement devices to be installed next year: 0

Types of Measurement Devices Being Installed	*Accuracy*	*Total Installed During Current Year*
Propeller Meters	±2%	3

2. *Designate a water conservation coordinator to develop and implement the Plan and develop progress reports*

Name: Dennis R. Keller *Title:* Engineer-Manager

Address: P.O. Box 911 Visalia, CA 93279

Telephone: (559) 732-7938 *E-mail:* kelweg1@aol.com

3. *Provide or support the availability of water management services to water users*

See **Attachment J**, Notices of District Education Programs and Services Available to Customers.

a. On-Farm Evaluations

1) On farm irrigation and drainage system evaluations using a mobile lab type assessment

	Total in district	*# surveyed last year*	*# surveyed in current year*	*# projected for next year*	*# projected 2nd yr in future*
Irrigated acres	3,560	0	40	200	200
Number of farms	30	0	1	4	4

Note: 200 acres per year is the District's annual objective.

2) Timely field and crop-specific water delivery information to the water user

Weekly Crop demand data provided to farm operators by the Friant Water Authority.

b. Real-time and normal irrigation scheduling and crop ET information

Most normal year information pertaining to irrigation scheduling and crop evapotranspiration (ET), such as CIMIS data and crop coefficients, is available to the landowner/grower through many agencies or services:

- The office of Water Use Efficiency (OWUE), through the Department of Water Resources (DWR) provides CIMIS data free of charge to the public for the use in estimating crop water use for irrigation scheduling. This information can be found through the OWUE's CIMIS website at www.cimis.water.ca.gov;
- During the growing season, crop ET information is published in the local newspapers and broadcast daily over the radio for reference and use by any water user;
- The U.S. Weather Service currently provides real-time CIMIS ET data and forecasts on their local weather channels.

c. Surface, ground, and drainage water quantity and quality data provided to water users

The District, upon request, will provide surface water quality data to landowners/growers.

d. Agricultural water management educational programs and materials for farmers, staff, and the public

Program	*Co-Funders (If Any)*	*Yearly Targets*
Provost & Pritchard Consulting Group	Keller/Wegley Consulting Engineers Client Group	Quarterly Publications/Mailings
Friant Water Authority	Friant Division Contractors	Monthly Publications

See **Attachment J** for samples of materials and notices provided.

e. other

None

4. Pricing structure - based at least in part on quantity delivered
Describe the quantity-based water pricing structure, the cost per acre-foot, and when it became effective.

The District is a water short district and the volumetric price reflects the very scarce nature of this resource. The District qualifies based on a High Volumetric Price as the incentive price mechanism. The District has pricing equivalent to or exceeding $200 per acre foot.

The District farm operator pays an estimated deposit for his entitlement allocation and this in itself does not contribute to the volumetric price. The farm operator can subsequently sell his/her allotment, however, to the release pool. If the Watermaster can sell this released quantity, the farm operator gets his money back. This creates an opportunity cost (implicit incentive price) for the farm operator in using the water for irrigation at $180 per acre foot canal-side. In addition, there is a District delivery fee for water used by the farm operator of $42 per acre foot. The combination of these two costs results in an implicit price in excess of $200 per acre foot.

5. Evaluate and describe the need for changes in policies of the institutions to which the district is subject

The Board of Directors and the District Engineer-Manager review on an annual basis, the policies of the District to insure consistency with the then current rules and regulations of the District.

6. Evaluate and improve efficiencies of district pumps
Describe the program to evaluate and improve the efficiencies of the contractor's pumps.

The District has pumps checked by an independent testing service on an annual schedule. Units below target operating efficiencies are either repaired or replaced. Three (3) pumping units were tested during the subject year, with one (1) pump being repaired.

B. Exemptible BMPs for Agricultural Contractors

(See Planner, Chapter 2, Appendix C for examples of exemptible conditions)

1. Facilitate alternative land use

Drainage Characteristic	*Acreage*	*Potential Alternate Uses*
High water table (<5 feet)	0	Not Applicable
Poor drainage	0	Not Applicable
Ground water Selenium concentration > 50 ppb	0	Not Applicable
Poor productivity	0	Class 6 Lands are not eligible for water service

Describe how the contractor encourages customers to participate in these programs.

2. Facilitate use of available recycled urban wastewater that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils.

Sources of Recycled Urban Waste Water	*AF/Y Available*	*AF/Y Currently Used in District*
No sources of urban wastewater exist within the District	N/A	N/A

3. Facilitate the financing of capital improvements for on-farm irrigation systems

The District maintains a listing of potential funding sources and has an established policy to provide assistance in completing funding application documents.

4. Incentive pricing

This BMP was initially targeted at those entities which charge for delivered water on a per-acre basis, typically do not meter deliveries and which also may be in a drainage problem area. As the quantity of water which is available to a grower under this scenario is independent of a measured charge basis, there is no incentive, from a cost savings perspective, to utilize less water. Over-irrigation where such billing processes are utilized has often led to exacerbation of drainage problems or has created drainage problems.

In the case of the District, not only are growers charged only for what they use, they are allowed to order the quantity of water which they anticipate that they are going to require for the upcoming growing season. They are then allowed periodic adjustments to the initial order, often without any monetary penalty. While the District is not in a drainage problem area, water accruing to the groundwater reservoir due to over-irrigation is seldom able to be recaptured by the same grower due to rapid movement through the shallow groundwater table and over-irrigation is therefore of no secondary benefit to the growers.

You will find attached hereto as **Attachment K**, an example of the application form which the District utilizes for initial water order purposes. An examination of the form demonstrates several issues. First, a grower can indicate exactly the amount of supply which he desires to order for a given season and is not required to take delivery of any water. While being required to fulfill his obligation to the Arvin-Edison Water Storage District relative to exchange requirements, he has the option to do so by returning part or all of his exchange entitlement for the given year.

Additional examination indicates that the District allows growers the capability to carry over supply from one year to another, assuming that such privilege is extended to the District by the USBR. The grower also has the option of applying for a supplemental request of water and, for requests exceeding the amount of water available in the District's return pool, can indicate the price range(s) in which he desires for the District to attempt to obtain such supplemental supply on his behalf.

Final billings to growers, while oftentimes not rendered for 4-5 years from the close of the water year, are based on actual quantities delivered. At the level of cost charged by the

District, it is obvious that the District growers have considerable incentive for optimizing the management of available supply.

In addition to the above-referenced procedures, the District offers an on-demand water delivery operation, for an additional charge, thus allowing growers the opportunity of determining their on-off schedules and allowing for termination of deliveries when crop demands have been met.

5. a) Line or pipe ditches and canals

Not applicable. The District's distribution system is a closed pipeline system.

b) Construct regulatory reservoirs

Regulatory reservoirs required for proper system operation have been constructed.

6. Increase flexibility in water ordering by, and delivery to, water users
See **Attachment K**, contractor 'agricultural water order' form

See Section 3.B.4

7. Construct and operate district spill and tailwater recovery systems

None

8. Plan to measure outflow.

This not applicable to the District, due to the District not having any outflow other than a shallow leaching fraction from applied water.

Total # of outflow (surface) locations/points 0
Total # of outflow (subsurface) locations/points 0
Total # of measured outflow points 0
Percentage of total outflow (volume) measured during report year Not Applicable

Identify locations, prioritize, determine best measurement method/cost, submit funding proposal

Location & Priority	*Estimated cost (in $1,000s)*				
	2009	*2010*	*2011*	*2012*	*2013*

9. Optimize conjunctive use of surface and ground water

Historically, the District has primarily achieved its groundwater recharge goals through an in-lieu program. When surface water supplies are available and can be delivered to the District, the surface water supplies are utilized "in lieu" of groundwater pumping. The District has managed the in-lieu portion of its recharge program efficiently and effectively since surface supplies became available to the District. The District will continue this program whenever surface supplies are available and will augment deliveries whenever supplemental supplies can be purchased at a reasonable cost and are ordered for delivery by growers.

The water demands of irrigated agriculture within the District were historically met by pumping of the groundwater supply. The first surface water supply was introduced in 1969. Between 1970 and 1972 there were only minor amounts of surface water utilized in conjunction with groundwater pumping. From 1973 on, the District growers have placed a greater reliance upon surface water supplies to augment the existing groundwater. The low yielding wells within the District are useful as a supplemental irrigation supply and in controlling the buildup of a perched water table in some areas.

The District therefore has a limited conjunctive use capability. This is an area of relatively low aquifer storage capacity, shallow depth of sediments prevail and in some locations restricted lateral drainage out of the area exists. Due to isolated conditions, some landowners

have chosen not to have groundwater extraction facilities. For those who do have wells, care must be exercised by the land operators to maintain a balance between recharge and withdrawal from the groundwater reservoir to prevent insufficient water supply from occurring on one hand and waterlogging of some of the problem area soils on the other.

The groundwater conditions with the District are highly variable. The average depth to groundwater has been approximately 25 feet. This changes drastically from spring to summer and from year to year. The aquifers within the District are very shallow and are subject to over-pumping in a short time. During years of heavy rainfall, the wells are serviceable for most of the year with only a reduction in capacity occurring during summer months. During the dry years, surface supplies are needed earlier. Typically, the landowners try to utilize wells during the spring months when the water levels and groundwater storage are at their highest levels.

10. Automate canal structures

The District applied for, but failed to receive a Field Services grant to evaluate the costs and benefits of automation. The District has yet to determine if they are going to conduct an evaluation utilizing District only funding.

11. Facilitate or promote water customer pump testing and evaluation

See **Attachment J**, Notices of District Education Programs and Services Available to Customers

The District provides information to the growers relative to the availability of pump testing and efficiency services provided by the serving utility and independent providers. The involvement of the District with private pump efficiencies is related to water conservation and overall resource management. The fact that a farm operator may apply a given amount of water to a field with a pump which is operating at a less than optimum efficiency does affect the application time and the total quantity of water which is being demanded by the crop.

The District does not own or operate any deep well pumping facilities. The District operates distribution system pumping equipment, however, which is included in a preventive maintenance program of routine inspection, maintenance, repair and replacement. Included in this program is regular electrical system inspection and motor and pump efficiency testing.

12. Mapping

GIS maps	*Estimated cost*				
	2009	*2010*	*2011*	*2012*	*2013*
Layer 1 – Distribution system/base	*$1,000*	*$1,000*	*$1,000*	*$1,000*	*$200*
Layer 2 – Drainage system (None)					
Suggested layers:					
Layer 3 – Ground water information[1]					
Layer 4 – Soils map (complete)					
Layer 5 – Natural & cultural resources					
Layer 6 – Problem areas (None)					

[1]*Included in regional groundwater management plan and related annual reports.*

C. Provide a 3-Year Budget for Implementing BMPs

1. Amount actually spent during current year.

BMP #		BMP Name	Actual Expenditure (not including staff time)	Staff Hours[1]
A	1	Measurement	$4,619	20
	2	Conservation staff	1,500	10
	3	On-farm evaluation /water delivery info	500	0
		Irrigation Scheduling	100	1
		Water quality	1,200	12
		Agricultural Education Program	1,000	1
	4	Quantity pricing	5,000	60
	5	Policy changes	0	0
	6	Contractor's pumps	1,650	12
B	1	Alternative land use	0	0
	2	Urban recycled water use	0	0
	3	Financing of on-farm improvements	3,000	20
	4	Incentive pricing	0	0
	5	Line or pipe canals/install reservoirs	400	2
	6	Increase delivery flexibility	500	5
	7	District spill/tailwater recovery systems	2,000	4
	8	Measure outflow	0	0
	9	Optimize conjunctive use	0	0
	10	Automate canal structures	0	0
	11	Customer pump testing	100	1
	12	Mapping	1,000	0
		Total	$22,569	148

[1] Contracted Staff.

2. Projected budget summary for the next year.

BMP #		BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours[2]
A	*1*	*Measurement*	*$10,000*	*60*
	2	*Conservation staff*	*1,500*	*10*
	3	*On-farm evaluations/water delivery info*	*2,000*	*4*
		Irrigation Scheduling	*100*	*1*
		Water quality	*1,500*	*12*
		Agricultural Education Program	*2,000*	*4*
	4	*Quantity pricing*	*5,500*	*65*
	5	*Policy changes*	*120,000*	*240*
	6	*Contractor's pumps*	*2,500*	*10*
B	*1*	*Alternative land use*	*0*	*0*
	2	*Urban recycled water use*	*200*	*1*
	3	*Financing of on-farm improvements*	*1,000*	*8*
	4	*Incentive pricing*	*2,500*	*10*
	5	*Line or pipe canals/install reservoirs*	*0*	*0*
	6	*Increase delivery flexibility*	*50,000*	*80*
	7	*District spill/tailwater recovery systems*	*2,000*	*4*
	8	*Measure outflow*	*0*	*0*
	9	*Optimize conjunctive use*	*0*	*0*
	10	*Automate canal structures*	*1,000*	*8*
	11	*Customer pump testing*	*1,000*	*8*
	12	*Mapping*	*1,000*	*0*
		Total	*$203,800*	*525*

3. Projected budget summary for 3rd year.

BMP #		BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A	*1*	*Measurement*	*$10,000*	*60*
	2	*Conservation staff*	*5,000*	*50*
	3	*On-farm evaluations/water delivery info*	*2,000*	*4*
		Irrigation Scheduling	*100*	*1*
		Water quality	*1,500*	*12*
		Agricultural Education Program	*2,000*	*4*
	4	*Quantity pricing*	*5,500*	*65*
	5	*Policy changes*	*30,000*	*50*
	6	*Contractor's pumps*	*2,500*	*10*

[2]Contracted Staff

(continued)			*Budgeted Expenditure*	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*[3]
B	*1*	*Alternative land use*	*$0*	*0*
	2	*Urban recycled water use*	*200*	*1*
	3	*Financing of on-farm improvements*	*1,000*	*8*
	4	*Incentive pricing*	*2,500*	*10*
	5	*Line or pipe canals/install reservoirs*	*0*	*0*
	6	*Increase delivery flexibility*	*50,000*	*80*
	7	*District spill/tailwater recovery systems*	*2,000*	*4*
	8	*Measure outflow*	*0*	*0*
	9	*Optimize conjunctive use*	*0*	*0*
	10	*Automate canal structures*	*0*	*0*
	11	*Customer pump testing*	*1,000*	*8*
	12	*Mapping*	*1,000*	*0*
		Total	*$116,300*	*367*

[3] Contract Staff

Section 4: Best Management Practices for Urban Contractors

(Due to the adoption of revised BMPs in December 2008, this section will be updated in Spring 2009.)

Not Applicable

A. Urban BMPs

1. *Utilities Operations*
   - *1.1 Operations Practices*
   - *1.2 Pricing*
   - *1.3 Metering*
   - *1.4 Water Loss Control*

2. *Education*
   - *2.1 Public Information Programs*
   - *2.2 School Education*
3. *Residential*

4. *CII*
5. *Landscape*

B. Provide a 3-Year Budget for Expenditures and Staff Effort for BMPs

1. Amount actually spent during current year.

Year 2010 BMP # BMP Name	Projected Expenditures (not including staff hours)	Staff Hours
1. Utilities Operations		
1.1 Operations Practices	$0	0
1.2 Pricing$0	0	
1.3 Metering	$0	0
1.4 Water Loss Control	$0	0
2. Education		
2.1 Public Information Programs	$0	0
2.2 School Education	$0	0
3. Residential	$0	0
4. CII	$0	0
5. Landscape	$0	0
Total	$0	0

2. Projected budget summary for 2nd year.

Year 2011 BMP #	BMP Name	Projected Expenditures (not including staff hours)	Staff Hours
1.	*Utilities Operations*		
	1.1 Operations Practices	*$0*	*0*
	1.2 Pricing	*$0*	*0*
	1.3 Metering	*$0*	*0*
	1.4 Water Loss Control	*$0*	*0*
2.	*Education*		
	2.1 Public Information Programs	*$0*	*0*
	2.2 School Education	*$0*	*0*
3.	*Residential*	*$0*	*0*
4.	*CII*	*$0*	*0*
5.	*Landscape*	*$0*	*0*
	Total	*$0*	*0*

3. Projected budget summary for 3rd year.

Year 2012 BMP #	BMP Name	Projected Expenditures (not including staff hours)	Staff Hours
1.	Utilities Operations		
	1.1 Operations Practices	$0	0
	1.2 Pricing$0	0	
	1.3 Metering	$0	0
	1.4 Water Loss Control	$0	0
2.	Education		
	2.1 Public Information Programs	$0	0
	2.2 School Education	$0	0
3.	Residential	$0	0
4.	CII	$0	0
5.	Landscape	$0	0
	Total	$0	0

Section 5: District Water Inventory Tables

Table 1

Surface Water Supply

2009 Month	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (See Below) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
Method							
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	9	0	0	0	0	0	9
April	459	0	0	0	0	0	459
May	630	0	0	0	0	0	630
June	859	0	0	0	0	0	859
July	1,141	0	0	0	0	0	1,141
August	949	0	0	0	139	0	1,088
September	616	0	0	0	361	0	977
October	413	0	0	0	0	0	413
November	197	0	0	0	0	0	197
December	79	0	0	0	0	0	79
TOTAL	5,352	0	0	0	500	0	5,852

Table 2

Ground Water Supply

2009 Month	District Groundwater (acre-feet)	Private Groundwater *(acre-feet)
Method		
January	0	112
February	0	255
March	0	373
April	0	0
May	0	1,449
June	0	1,811
July	0	2,338
August	0	1,048
September	0	117
October	0	0
November	0	0
December	0	0
TOTAL	0	7,503

*normally estimated

Table 3

Total Water Supply

2009 Month	Surface Water Total (acre-feet)	District Groundwater (acre-feet)	Recycled M&I (acre-feet)	Total District Water (acre-feet)
Method				
January	0	0	0	0
February	0	0	0	0
March	9	0	0	9
April	459	0	0	459
May	630	0	0	630
June	859	0	0	859
July	1,141	0	0	1,141
August	1,088	0	0	1,088
September	977	0	0	977
October	413	0	0	413
November	197	0	0	197
December	79	0	0	79
TOTAL	5,852	0	0	5,852

*Recycled M&I Wastewater is treated urban wastewater that is used for agriculture.

Table 4

Distribution System

2009 Canal, Pipeline, Lateral, Reservoir	Length (feet)	Width (feet)	Surface Area (square feet)	Precipitation (acre-feet)	Evaporation (acre-feet)	Spillage (acre-feet)	Seepage (acre-feet)	Total (acre-feet)
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
TOTAL			0	0	0	0	0	0

Table 5

Crop Water Needs

2009 Crop Name	Area (crop acres)	Crop ET (AF/Ac)	Leaching Requirement (AF/Ac)	Cultural Practices (AF/Ac)	Effective Precipitation (AF/Ac)	Appl. Crop Water Use (acre-feet)
Almonds	79	2.80	0.20	0.00	0.30	213
Grapes (Table)	38	3.80	0.20	0.00	0.20	144
Irrigated Pasture	40	6.50	0.20	0.00	0.40	252
Lemons & Limes	49	2.90	0.20	0.25	0.40	145
Olives	120	2.80	0.20	0.00	0.40	312
Oranges/Tangerines	2,718	2.90	0.20	0.25	0.40	8,018
Peaches	57	3.70	0.20	0.00	0.40	200
Pistachios	18	2.80	0.20	0.00	0.30	49
Prunes & Plums	379	3.70	0.20	0.00	0.40	1,327
Idle	62	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
	0	0.00	0.00	0.00	0.00	0
Crop Acres	3,560					10,659

Total Irrig. Acres 3,473 (If this number is larger than your known total, it may be due to double cropping)

Table 6

2009 District Water Inventory

Water Supply	Table 3		5,852
Riparian ET	(Distribution and Drain)	minus	0
Groundwater recharge	(intentional - ponds, injection)	minus	0
Seepage	Table 4	minus	0
Evaporation - Precipitation	Table 4	minus	0
Spillage	Table 4	minus	0
Transfers/exchanges/trades/wheeling	(into or out of the district)	plus/minus	0
Non-Agri deliveries	(delivered to non-ag customers)	minus	0
Water Available for sale to agricultural customers			5,852
Compare the above line with the next line to help find data gaps			
2005 Actual Agricultural Water Sales	From District Sales Records		5,852
Private Groundwater	Table 2	plus	7,503
Crop Water Needs	Table 5	minus	10,659
Drainwater outflow	(tail and tile not recycled)	minus	0
Percolation from Agricultural Land	(calculated)		2,696

The Percolation from Agricultural Land figure includes the applied water component which evaporates from the land surface.

Table 7

Influence on Groundwater and Saline Sink

2009

Agric Land Deep Perc + Seepage + Recharge - Groundwater Pumping = District Influence on	0
Estimated actual change in ground water storage, including natural recharge)	0
Irrigated Acres (from Table 5)	3,560
Irrigated acres over a perched water table	0
Irrigated acres draining to a saline sink	0
Portion of percolation from agri seeping to a perched water table	0
Portion of percolation from agri seeping to a saline sink	0
Portion of On-Farm Drain water flowing to a perched water table/saline sink	0
Portion of Dist. Sys. seep/leaks/spills to perched water table/saline sink	0
Total (AF) flowing to a perched water table and saline sink	0

Table 8

Annual Water Quantities Delivered Under Each Right or Contract

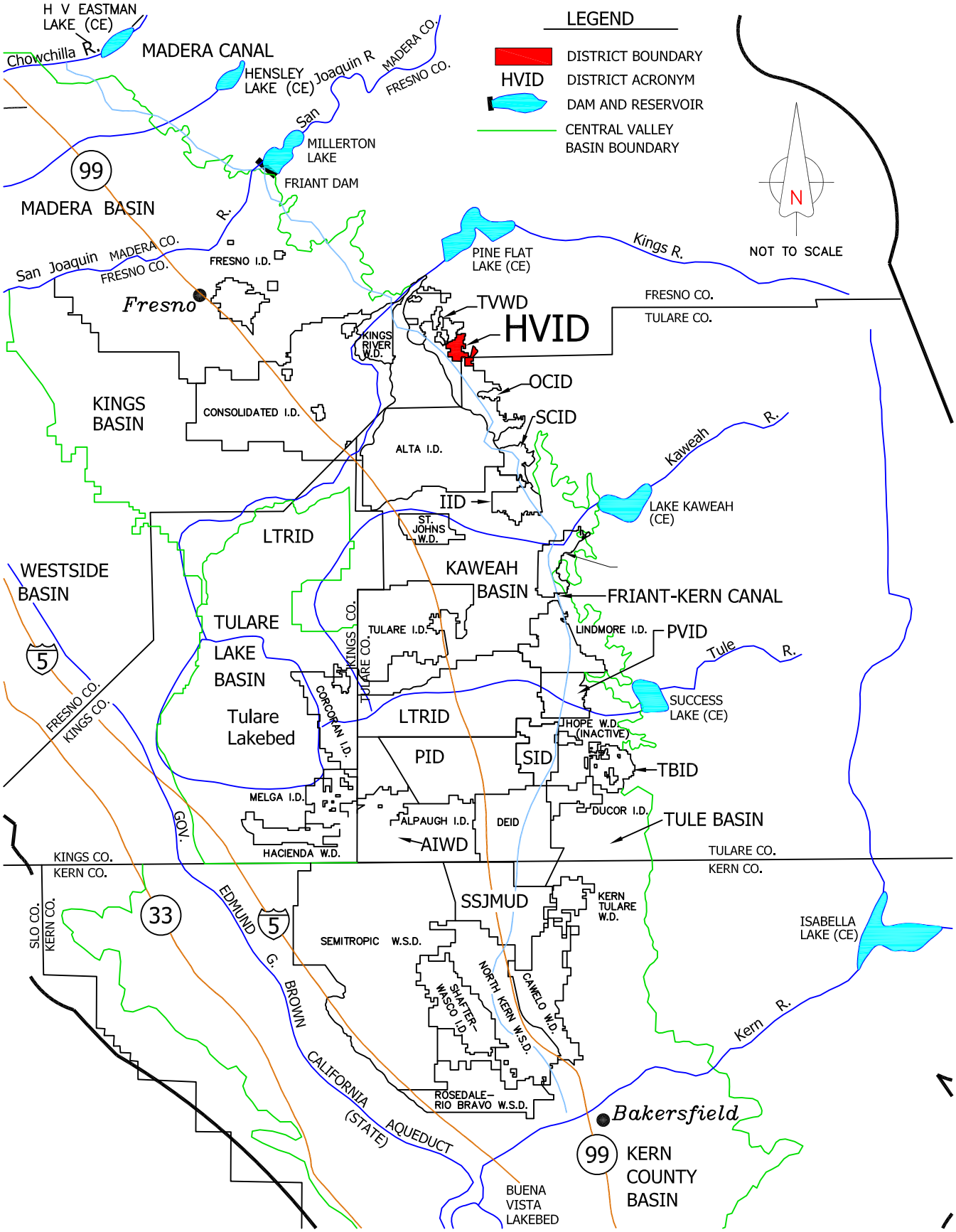
Year	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (acre-feet)	Other Water (See Below) (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
2000	3,745	0	0	0	0	0	3,745
2001	4,777	0	0	0	0	0	4,777
2002	4,531	0	0	0	300	0	4,831
2003	3,780	0	0	0	487	0	4,267
2004	4,763	0	0	0	0	0	4,763
2005	4,242	0	0	0	0	0	4,242
2006	4,766	0	0	0	0	0	4,766
2007	4,769	0	0	0	525	0	5,294
2008	3,960	0	0	0	1,032	0	4,992
2009	5,352	0	0	0	500	0	5,852
Total	44,685	0	0	0	2,844	0	47,529
Average	4,469	0	0	0	284	0	4,753

PLATES

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT



LOCATION MAP
AGRICULTURAL WATER MANAGEMENT PLAN
HILLS VALLEY IRRIGATION DISTRICT

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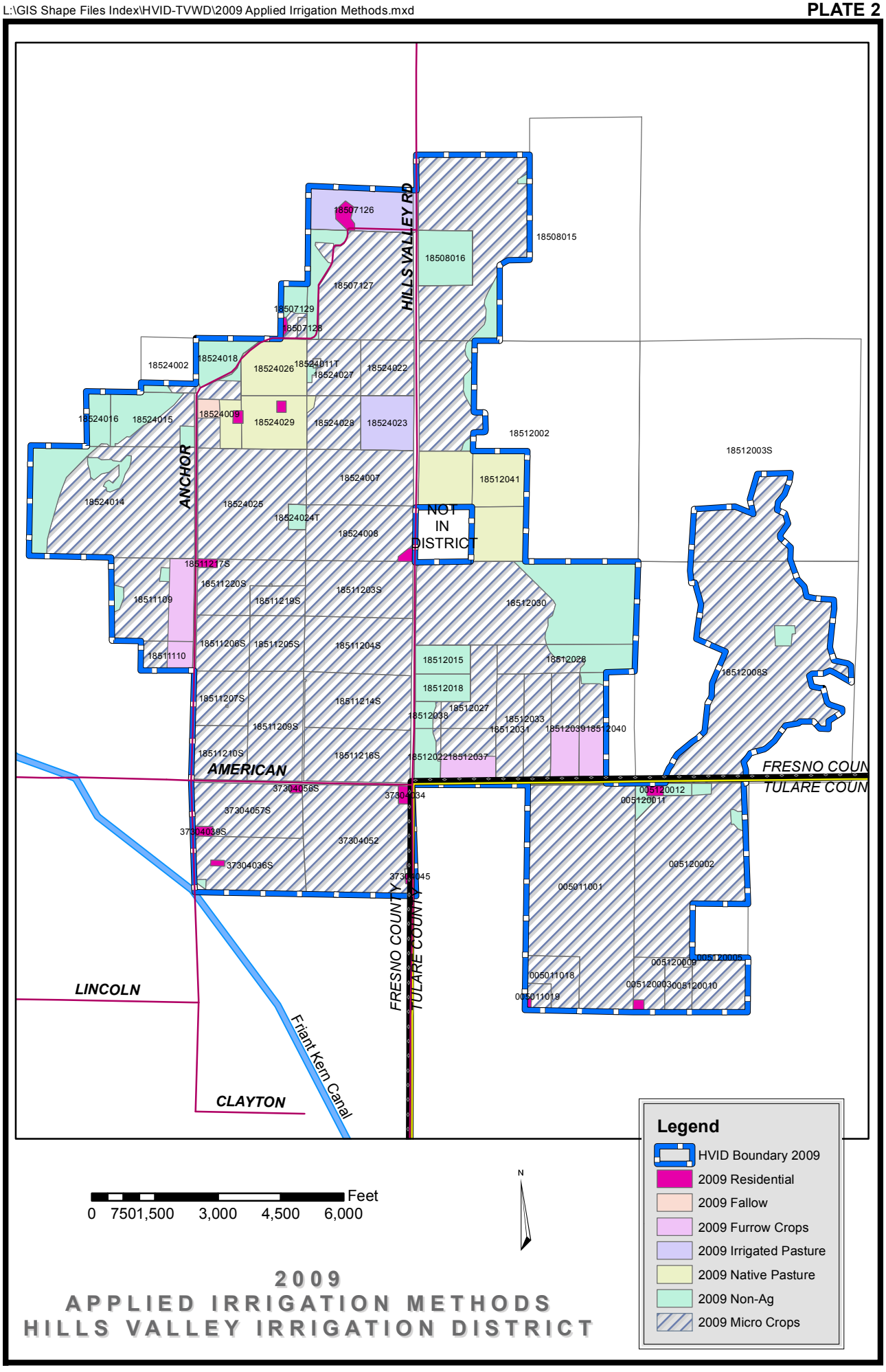
PLATE 2



2009
APPLIED IRRIGATION METHODS
HILLS VALLEY IRRIGATION DISTRICT

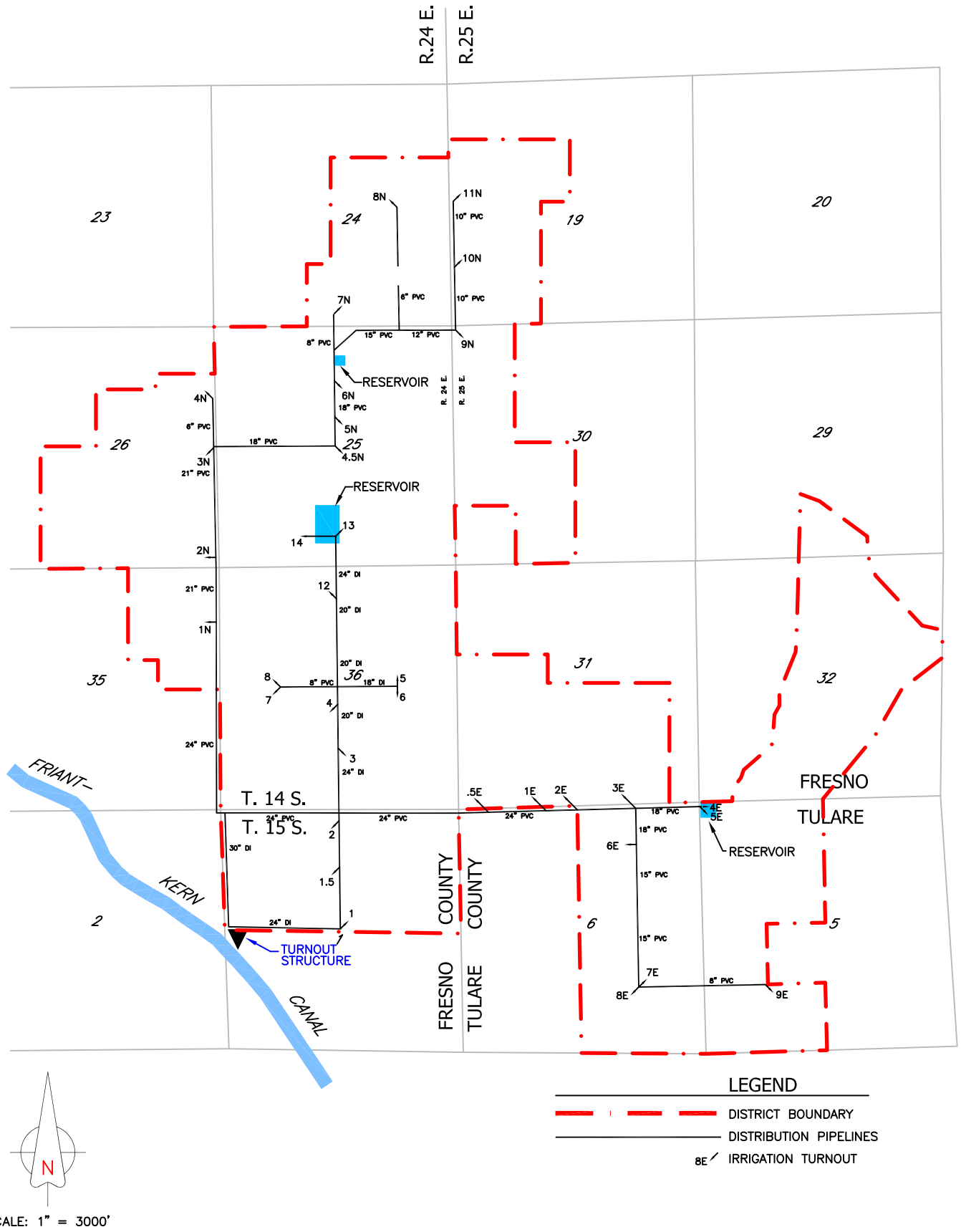
ATTACHMENT A

DISTRICT FACILITIES MAP

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT



DISTRIBUTION SYSTEM
AGRICULTURAL WATER MANAGEMENT PLAN
HILLS VALLEY IRRIGATION DISTRICT

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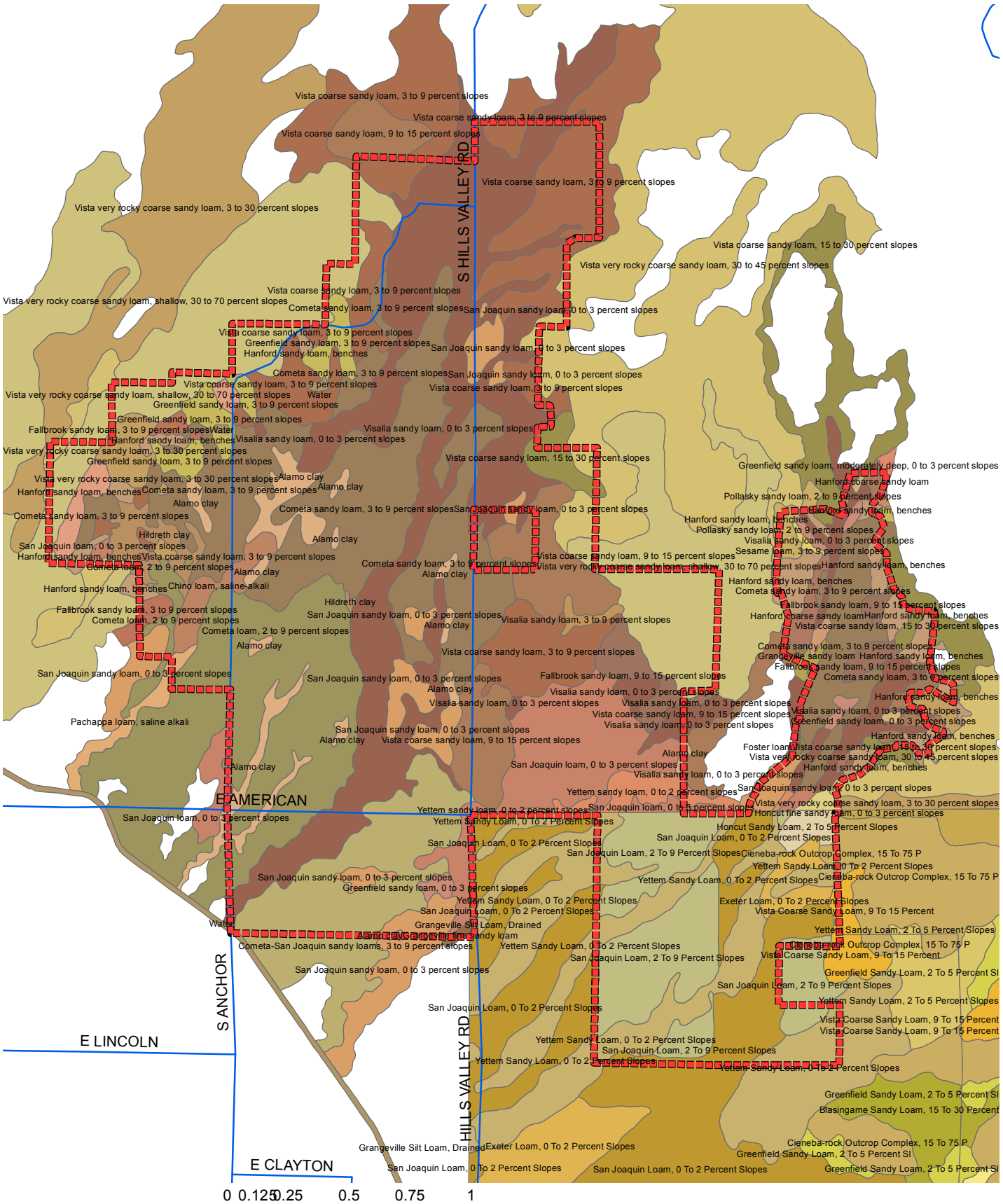
ATTACHMENT B

DISTRICT SOILS MAP

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT



SOIL CLASSIFICATIONS

WATER MANAGEMENT PLAN - UPDATE 2011

HILLS VALLEY IRRIGATION DISTRICT

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ATTACHMENT C

DISTRICT RULES AND REGULATIONS

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

HILLS VALLEY IRRIGATION DISTRICT
Rules and Regulations for Fixing and Collecting Charges
TABLE OF CONTENTS

HILLS VALLEY IRRIGATION DISTRICT
Rules and Regulations for Fixing and Collecting Charges
TABLE OF CONTENTS (Continuing)

HILLS VALLEY IRRIGATION DISTRICT
Rules and Regulations for Fixing and Collecting Charges

1. **Records**. The Assessor-Collector shall, at all times, keep adequate records in his office at the principal office of the Hills Valley Irrigation District (the "District"), which shall include the following:

a. **Name**. The name of the owner or owners of each parcel of land within the District as listed in the records of the Fresno County Assessor or the Tulare County Assessor as of the date on which charges for services rendered by the District to lands within the District were last computed and entered in the records of the District as hereinafter provided. If the name is not known to the Fresno County Assessor or Tulare County Assessor, it shall be listed as "Owner Unknown".

b. **Description**. A description of each such parcel of land sufficient to identify it. The legal description according to the Fresno County or Tulare County Assessor's records and/or the Fresno County or Tulare County Assessor's parcel number as of the date on which charges for services rendered by the District to lands within the District were last computed and entered in the records of the District shall be adequate as hereinafter provided.

c. **Number of Acres**. A statement of the number of acres of land in each parcel.

2. **Records Inspection**. The records so kept shall be subject to inspection by anyone interested.

3. **Classifications**. Each year, at the first regular meeting of the Board of Directors after March 1, the Board shall fix classifications classifying all lands within the District according to the irrigation capability and shall place a relative value upon each

such classification for the purpose of equitably apportioning charges to be made for the services to be rendered by the District to those Lands. Such classifications and relative values shall be entered in the records kept in the office of the Assessor-Collector.

4. **Notice of Classification**. Upon being advised by the Assessor-Collector that he had entered the classifications and relative values so fixed by the Board in his records, and that his records are otherwise complete, the Secretary for the District shall immediately set and publish notice of a time and place fixed for a meeting of the Board as a Board of Equalization. The notice shall state that the Board will hear and determine objections to the classifications and relative values placed on said lands, and to any other matter pertaining thereto which may come before it, and that a record of such classifications and relative values is in the office of the Assessor-Collector and will remain thence subject to inspection by all persons interested pending such equalization.

a. **Publishing of Notice**. The notice above referred to shall be published at least twice in a newspaper published within the boundaries of the District. The notice shall be first published at least 20 days, and not more than 30 days, before the time fixed for the first meeting of the Board as a Board of Equalization.

5. **Board as Board of Equalization**. On the day specified in the notice, the Board shall meet as a Board of Equalization to hear and determine objections to the classifications and relative values previously fixed by it or any other matter pertaining to the fixing of charges coming before it.

a. **Water User Application to be Heard**. At least five (5) days prior to the day fixed for the first meeting of the Board as a Board of Equalization, any landowner may apply in writing to be heard upon any matter relative to his property or

the charges to be made against him or his property that are a subject of equalization, stating the reason for any change he may request. Unless such Application is received at the office of the District at least five (5) days prior to the hearing, he may be heard only within the discretion of the Board.

b. **Meeting**. The Board, acting as a Board of Equalization, shall continue in session from time to time as long as may be necessary, but not to exceed ten days, exclusive of Sundays.

c. **Changes**. The Board, acting as a Board of Equalization, shall order any change in acreage, classification, relative value or otherwise that it deems just.

d. **Recording**. The Assessor-Collector shall be present during the equalization proceedings and shall record all changes made in his records.

6. **Budget and rate of charges**. The Board of Directors, not later than at its second regular meeting after the close of equalization, shall approve and adopt a budget for the conduct of the business and affairs of the District during the next succeeding year and shall determine the amount of money it must collect from charges imposed under Water Code Section 22280 to satisfy the requirements of that budget. The Board shall, at the same meeting, fix a rate to be applied by the Assessor-Collector to each $100.00 of the relative value placed upon each acre of land within the District to meet those requirements according to the classifications previously determined and shall instruct the Assessor-Collector to compute said charges, to enter the same in the records of the District and to collect said charges from the person or persons owning or claiming a possessory interest in said lands.

7. **Charges**.

a. **Computation**. On or before May 15th of each year, after the Board of Directors meeting above referred to, the Assessor-Collector shall compute the charges to be so levied against the person or persons owning or claiming a possessory interest in each said parcel of land as so directed by the Board and shall enter the same in the records of the District in his office.

b. **Collection**. Said charges shall become a charge against said person or persons and against said lands and the Assessor-Collector shall proceed to collect said charges as directed by the Board, as hereinafter provided.

c. **Payment**. The charges so fixed shall be payable in one annual payment.

d. **Mailing of Charges**. Not later than May 20 of the year in which the charges are fixed, or as otherwise established by the Board, the Assessor-Collector shall mail to each Water User or other person to be charged, a statement of such charges, showing the amount of each installment, a description of the parcel of land against which the charge is made, the number of acres in that parcel and the date upon which the payment will become delinquent.

e. **Publishing of Charges**. As soon as reasonably possible after the statements referred to in Rule 7(d) are mailed, the Assessor-Collector shall publish a notice specifying the following:

1. That the charges are due and payable;
2. The time and place at place at which payment of charges may be made;
3. The time when unpaid charges will become delinquent; and
4. The penalties for delinquency.

8. **Cancellation, Modification or Refund of Charges**. Any charge entered as above provided may be cancelled, modified or refunded as follows:

a. **Clerical Error**. Any charge so entered which is in error as a result of a clerical error may be cancelled or modified by the Assessor-Collector.

b. **Any Other Error**. Any charge so entered which is in error for any other reason, or which appears to the Board to be inequitable or unjust, may be cancelled or modified by an action of or with approval of the Board of Directors.

c. **Correction and Refund**. If any charge so entered is cancelled or modified as above provided, the Assessor-Collector shall correct the books and records in his office and if such corrections occur after the person to be charged has been billed, the Assessor-Collector shall immediately mail a corrected billing to that person. If such cancellation or modification occurs after the original billing has been paid and there has been an overpayment, the amount of such overpayment shall be refunded by the Assessor-Collector; provided, however, no claim for such a refund may be enforced unless a verified Application for such refund has been filed by the person who paid the charge within three years after the making of the payment to be refunded.

d. **Overpayment**. If any charge so entered is overpaid, the amount of such overpayment shall be refunded by the Assessor-Collector.

e. **Modification**. The Board of Directors may at any time change the classification and/or relative value assigned to a parcel of land on its own motion, or on the recommendation of the Manager, when and if it appears to the Board upon evidence presented to it that there has been a change in the use of the land or the services rendered to the land and that such change in classification and/or relative value is equitable and just. Before finally making any such determination, the Board

shall give the landowner an opportunity to be heard. When such determination has been made, the Board shall direct the Assessor-Collector to make such change in his records, to notify the landowner of such change and to take such steps as he may deem necessary and proper to collect any charges indicated by such change.

9. **Delinquencies**. The charges, if unpaid, shall become delinquent at 5:00 p.m. on July 1 of the year in which the charge was fixed. If the date of delinquency shall fall on a Saturday, Sunday or a holiday, the payment due on that date shall become delinquent at 5:00 p.m. on the next business day.

a. Publishing List of Delinquencies. When and if any charge or charges fixed as above provided shall become delinquent, the Assessor-Collector shall publish a List of Delinquencies. The List of Delinquencies and the Notice above referred to shall be published as provided in Sections 26105 through 26108 of the California Water Code. It shall contain the following information relative to each parcel of land separately on which a charge has become delinquent:

1. The name of the person or persons liable for such charge;
2. A description of the parcel of land against which such charge was made;
3. The total amount due which shall be the aggregate of the charges, penalties and costs due thereon; and
4. Notice that each parcel separately on which a charge and/or assessment had become delinquent will be sold to the District. Said notice shall state the time and place of the sale.

b. **Collection of Delinquent Charges**. Unless otherwise directed by

the Board of Directors, all delinquent charges and assessments shall be collected in the manner provided in Chapter 5 (commencing with Section 26075) and Chapter 6 (commencing with Section 26225) of Division 11 of Part 10 of the California Water Code.

c. **Penalties and Interest**. Upon the charge becoming delinquent, the Assessor-Collector shall collect all charges due, interest accruing since the date of delinquency at a rate of ten percent (10%) per annum and a late penalty of ten percent (10%), but in no case greater than any interest or penalty allowed by law.

10. **Action Subsequent to Fixed Dates**. If any duty of the Secretary or Assessor-Collector relating to the fixing, levy or collection of charges provided for herein is performed subsequent to the dates fixed herein, the charge effected thereby shall not become invalid or uncollectible unless it is proved that such delay resulted in substantial prejudice to the person so charged.

11. **Fixing of Charges Due to Improvements**. These rules are not intended and do not apply to the fixing of charges which may from time to time be imposed upon certain lands within the District in connection with irrigation system improvement projects authorized by the Board of Directors, pursuant to procedures heretofore established by the Board for that purpose, but when said charges have been fixed and made a charge against said lands, they shall be entered in the books and records of the Assessor-Collector and shall be collected by the Assessor-Collector as provided herein.

ATTACHMENT D

DISTRICT SAMPLE BILL

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

Hills Valley Irrigation District

209 South Locust Street — P. O. Box 911
Visalia, California 93279-0911
Phone 559/732-7938 • FAX 559/732-7937

December 1, 2009

INVOICE

Deposit Billing for Water Delivered from March 1, 2009, through November 30, 2009

Delivery Location: Turnout # 6

Quantity delivered for the months of:

March	.00	af
April	.00	af
May	.00	af
June	11.12	af
July	37.30	af
August	27.83	af
September	22.22	af
October	2.61	af
November	.00	af
Total Delivered	**101.08**	**af**

Charges:

Water purchase charges to date	@ $	180.00 /af	$	18,194.40
Water delivery charges to date	@ $	42.00 /af		4,245.36
Total Due			**$**	22,439.76

Due upon receipt
Delinquent January 29, 2010
A 5% penalty, plus 12% per annum interest
charge applies until paid

ATTACHMENT E

DISTRICT WATER SHORTAGE PLAN

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

Attachment E is not applicable to the District. As per Section 1.H.1, water shortages are prorated between the entitlement holders based on a ratio of their contract entitlement to the total District entitlement.

ATTACHMENT F

DISTRICT MAP OF GROUNDWATER FACILITIES

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

Attachment F is not applicable to the District. As per Section 2.B.3, the District does not own or operate any groundwater extraction wells.

ATTACHMENT G

GROUNDWATER MANAGEMENT PLAN

FIVE YEAR UPDATE

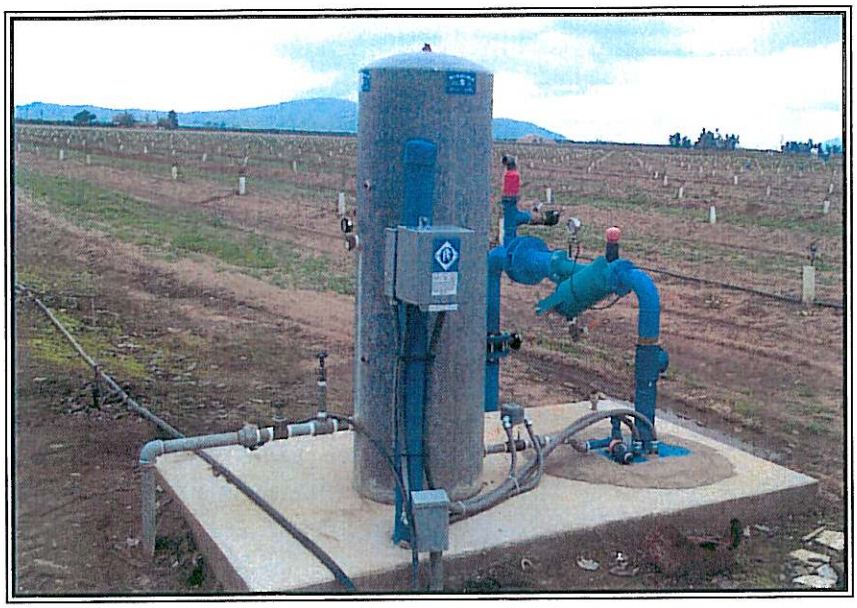
WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

FOR

ORANGE COVE IRRIGATION DISTRICT
TRI-VALLEY WATER DISTRICT
HILLS VALLEY IRRIGATION DISTRICT



Prepared by:

Provost & Pritchard Engineering Group, Inc.
Fresno, CA

EST. 1968
PROVOST & PRITCHARD INC.
ENGINEERING GROUP
An Employee Owned Company

Adopted

June 14, 2006

Groundwater Management Plan
Orange Cove Irrigation District
Tri-Valley Water District
Hills Valley Irrigation District

TABLE OF CONTENTS

Exhibits

Tables

Appendices

List of Abbreviations

AB	Assembly Bill
CVP	Central Valley Project
DWR	Department of Water Resources
GMP	Groundwater Management Plan
GPM	Gallons per minute
HVID	Hills Valley Irrigation District
OCID	Orange Cove Irrigation District
PMZ	Pest Management Zones
SB	Senate Bill
TVWD	Tri-Valley Water District
USBR	United States Bureau of Reclamation
WSD	Water Storage District

EXECUTIVE SUMMARY

The Orange Cove Groundwater Management Plan is a cooperative effort between the Orange Cove Irrigation District (OCID), Hills Valley Irrigation District (HVID), and Tri-Valley Water District (TVWD). These districts are located near the City of Orange Cove in both Fresno and Tulare Counties (Exhibit ES-1). The area covered by the three Districts is called the 'Plan Area' and the three Districts are called the 'Plan Group'. Recently, the three districts have discussed consolidation into a single district to improve coordination and reduce overhead costs.

This Groundwater Management Plan (GMP or Plan) is a revision of a Plan that was adopted by the Plan Group in 1997. The Plan was revised to satisfy the new requirements for GMPs created by the California State Senate Bill No. 1938 (September 2002) that amended sections 10753 and 10795 of the California Water Code.

Goals and Objectives of Groundwater Management Plan

The objective of this GMP is to present alternatives and guidelines for meeting the following goals:

- Optimize the volume of usable groundwater underlying the Plan Area;
- Protect the groundwater quality;
- Coordinate the groundwater management efforts between the Plan Group districts;
- Implement a groundwater-monitoring program to provide an "early warning" system to future problems; and
- Stabilize groundwater levels in order to minimize pumping costs and energy use.

Water Supplies

The Plan Group members are all Central Valley Project (CVP) water contractors and contract for water directly or indirectly from the Friant Unit of the CVP. These surface water supplies are not sufficient to meet full irrigation requirements, and therefore, landowners must pump groundwater or find other surface supplies to meet crop demands. For the most part, groundwater wells within the Plan Area produce significantly less than 100 gallons per minute (gpm). Although groundwater is pumped throughout the entire Plan Area, only the aquifer in the southern portion of OCID, as depicted on Exhibit ES-1, yields a significant groundwater supply. The Plan Area also faces significant water management challenges as a result of inadequate surface water storage in Millerton Reservoir, inadequate groundwater storage due to the unfavorable characteristics of the local aquifer, and a lack of long-term groundwater banking agreements that could provide a reliable dry-year water supply.

Geology and Hydrogeology

In the early 1900's the groundwater level declined rapidly in the Plan Area as irrigated agriculture became prevalent. After OCID obtained a CVP surface water contract in the late 1940's the groundwater level began to rise and is now fairly stable. In the area with a sustainable groundwater supply, depth to groundwater ranged from about 10 feet to 60 feet in 2002.

The presence of shallow granite bedrock beneath the surface of the Plan Area allows for little storage capacity in the shallow alluvium above. The upper few feet of the granite layer are the most decomposed and offer the largest storage capacity. This is also the most defined aquifer in the Plan Area, but still provides only limited groundwater storage potential.

Basin Management Objectives

The Plan Group's basin management objectives cover the following broad areas: 1) stakeholder involvement, 2) groundwater monitoring, 3) groundwater resources protection, 4) groundwater sustainability, and 5) groundwater planning and management. Guidelines and goals for each of these basin management objectives were established and documented in the GMP.

1 - Stakeholder Involvement

The Plan Group is located in the Kings Groundwater Basin, which includes other municipalities, irrigation districts, water districts, private water companies, and private users. This emphasizes the importance of inter-agency cooperation. The Plan Group has historically worked to optimize its surface water supplies due to the limited basin water within its boundaries. However, due to the ever increasing demand for water in the State, the Group recognizes the importance of including groundwater in its planning activities where it can potentially enhance dry-year supplies. The Plan Group will work with the following agencies to manage the local groundwater: County of Fresno, County of Tulare, City of Orange Cove, Alta Irrigation District, Friant Water Users Authority, Kings River Conservation District, Department of Water Resources (DWR), and United States Bureau of Reclamation (USBR). The Plan Group will continue to participate in the following inter-agency efforts:

- Meetings and cooperative efforts involving the joint authors of this Plan;
- Sharing of groundwater level data with the Alta Irrigation District;
- Submission of groundwater level data to the DWR, USBR and Fresno County; and
- Encourage the City of Orange Cove to resume tertiary treatment at their water treatment plant.

An important instrument in these efforts is the recently formed Groundwater Advisory Committee (Committee). The Committee was formed to update, plan, monitor, and evaluate the technical progress made in achieving the goals of this Plan. The

Committee will attempt to meet annually, or more frequent if deemed appropriate, and will have the following responsibilities:

- Review trends in groundwater levels and quality;
- Evaluate the effectiveness of groundwater policies and groundwater facilities;
- Recommend updates or amendments to the GMP;
- Provide coordination among the Plan Group (OCID, TVWD and HVWD);
- Monitor and evaluate the implementation of the proposed OCID drought preparedness program;
- Educate landowners on the importance of various groundwater management activities; and
- Submit an annual memorandum to the Plan Group including comments, ideas and recommendations.

2 - Groundwater Monitoring

The Plan Group's groundwater monitoring program includes two main elements: groundwater-level monitoring and groundwater-quality monitoring. The monitoring program is intended to: 1) provide warning of potential future problems; 2) gather data for water resources evaluations; 3) develop meaningful long-term trends in groundwater characteristics; 4) provide data comparable from place to place in the Plan Area; and 5) better characterize the quality of groundwater in the Plan Area.

Land surface subsidence, saline water intrusion, migration of contaminated groundwater, and surface water quality impacts on groundwater are not currently problems in the Plan Area. Nevertheless, the Plan Group will monitor the groundwater in a manner that provides management information about these issues. If any of these issues become problematic then appropriate monitoring and mitigation efforts will be investigated.

Groundwater Level Monitoring. OCID currently measures water levels each spring and fall in about 30 wells. The OCID monitoring network is being significantly expanded to include a larger number of wells, consistent monitoring protocols, a Geographic Information System, and an updated database to store groundwater data and assist with preparing annual groundwater reports. The new monitoring network is expected to be completed by early 2006.

Groundwater Quality Monitoring. The Plan Area has not historically had groundwater quality problems, and, consequently, the Plan Group has only performed water quality testing on a sporadic and limited basis. Nevertheless, the Plan Group has a tentative goal to develop a groundwater-quality monitoring-program that would detect problems in time to remedy them. The program would primarily entail collecting and reviewing data collected by other agencies. For municipal purposes, some groundwater in the area of

the Orange Cove exceeds the permissible level of nitrates for drinking water, but is still suitable for agriculture. The Plan Group will continue to collect and review water quality data from the City of Orange Cove's monitoring program, and periodically assess the adequacy of the monitoring program.

3 - Groundwater Resources Protection

Fresno County has adopted a permitting program to assure proper construction, abandonment, and destruction of groundwater wells within Fresno County. The permitting program is consistent with guidelines in DWR Bulletin 74-81. The Plan Group supports and adheres to these standards. In addition, the Plan Group will encourage landowners to follow the same standards for privately owned wells.

4 - Groundwater Sustainability

Overdraft Mitigation. Groundwater overdraft is not presently a problem in the Plan Area. However, the rehabilitation of the OCID distribution system in the 1990's reduced system leakage, and groundwater replenishment, by about 2,600 acre-feet/year. The impact of the rehabilitation on groundwater overdraft will continue to be monitored.

In addition, OCID is currently studying the possibility of establishing in-lieu use agreements with growers. In-lieu use agreements would provide incentives for growers with reliable wells to use more surface water in wet years and shift to groundwater pumping in dry years. The release of those grower's surface water supplies in dry years would increase dry year surface water supplies for other growers in the Plan Area. If implemented, this program will be closely monitored to prevent groundwater overdraft or high water tables.

Groundwater Replenishment. The Plan Group does not practice intentional groundwater replenishment because of the fairly high and stable groundwater levels, and the existence of some natural and indirect forms of groundwater replenishment (deep percolation from irrigation, streambed infiltration, canal seepage, etc.). If overdraft becomes a problem then other methods of groundwater replenishment will be investigated.

Conjunctive Use of Water Resources. Conjunctive use of water is defined as the coordinated use of both surface and subsurface water so that the combination will result in synergistic benefits. When practical and appropriate, the policies below will be followed to encourage and facilitate conjunctive use:

- Encourage and assist water users with "in lieu" recharge;
- Pursue the acquisition of new surface water supplies;

- Generally discourage transfers of surface water out of the Plan Area that are replaced with groundwater pumping, except for District approved water sales or other transfers that are approved by the Board of Directors;
- Encourage urban water agencies to fully utilize surface supplies and minimize groundwater pumping;
- Work with all appropriate parties to protect existing surface water rights and supplies; and
- Seek opportunities to increase conservation storage through groundwater banking programs or off-stream storage.

5 - Groundwater Planning and Management

Land Use Planning. The Plan Group does not have direct land-use planning authority. However, they do have the opportunity to comment on the environmental documents for land-use related activities, and will pursue actions to minimize any adverse impact on groundwater supplies, groundwater quality, groundwater levels, groundwater recharge areas, and surface water supplies as a result of any proposed land use changes.

Groundwater Reports. The Plan Group has a goal to prepare annual groundwater reports. The reports will include groundwater level data, groundwater storage calculations, an evaluation of historical trends, a summary and evaluation of important groundwater management actions, and a summary of future goals.

Plan Implementation. Implementing the GMP is in the best interest of the Plan Group's growers. In addition, future funding for groundwater projects may be based largely on the Plan Group's pro-active role in implementing the GMP. The current implementation schedule for the GMP is as follows:

1. Implement a new expanded groundwater-level monitoring program. (2006)
2. Develop an incentive based in-lieu use program that would encourage groundwater pumping in dry years to provide more surface water to growers with no groundwater supply. (2006-2007)
3. Prepare annual groundwater reports. (beginning in 2006)
4. Hold annual Groundwater Advisory Committee meetings. (beginning in 2006)
5. Renew discussions with the City of Orange Cove regarding the use of treated water for irrigation. (2006-2007)
6. Seek opportunities to form or join regional water management groups. (2006-2007)
7. Incorporate water level data from areas just outside of OCID into the OCID groundwater database. (2006)

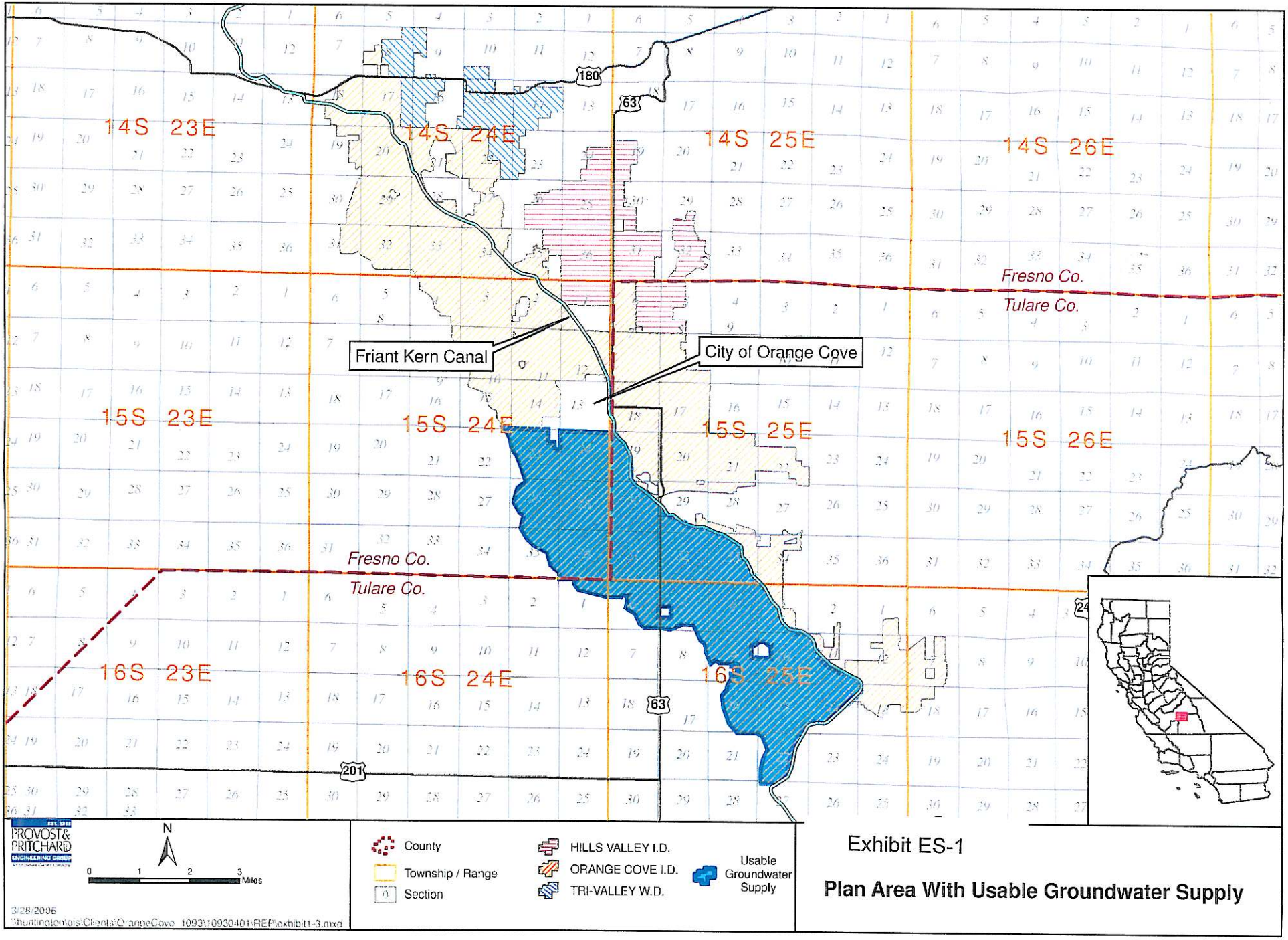


Exhibit ES-1

Plan Area With Usable Groundwater Supply

1 - INTRODUCTION

This Groundwater Management Plan (GMP or Plan) is a revision of a Plan that was adopted by the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District on October 27, 1997. The original Plan was prepared in accordance with the requirements prescribed in Assembly Bill No. 3030 (California Water Code Section 10750 et seq.). The Plan was revised to satisfy the new requirements for Groundwater Management Plans created by the September 2002 California State Senate Bill No. 1938, which amended Sections 10753 and 10795 of the California Water Code. The Plan also addresses recommended components for a Groundwater Management Plan described in Appendix C of Department of Water Resources Bulletin 118 (2003 Update).

1.1 - General

The Orange Cove Groundwater Management Plan is a joint venture between Orange Cove Irrigation District (OCID), Hills Valley Irrigation District (HVID), and Tri-Valley Water District (TVWD). These districts are located near the City of Orange Cove and are adjacent to the foothills of the Sierra Nevada Mountains. OCID's and HVID's service areas exist in both Fresno and Tulare Counties. TVWD's service area exists solely in Fresno County. Refer to **Exhibit 1-1** for a location map of the three agencies. From hereon, the area covered by the three Districts will be called the 'Plan Area' and the three Districts will be collectively called the 'Plan Group'.

The Plan Area is located about 30 miles southeast of the City of Fresno and 20 miles north of the City of Visalia and is comprised of 34,715 acres (OCID, 28,000 acres; HVID, 4,340 acres; TVWD 2,375 acres). The area is generally described as the irrigable land lying east of the Alta Canal between Campbell Mountain in the north and Stokes Mountain in the south.

The Plan Area is on the fringe of the Kings Groundwater Basin within the larger San Joaquin Basin Hydrologic Study Area. Refer to **Exhibit 1-2** for a groundwater basin map showing the Kings Groundwater Basin and surrounding groundwater basins.

The Plan Group members are all Central Valley Project (CVP) water contractors with OCID contracting for water directly from the Friant Unit of the CVP. The surface water supplies are generally considered supplemental supplies, as they are not sufficient to meet the full irrigation (consumptive use) requirements for the crops grown in the area. Therefore, landowners have to pump groundwater or find other surface supplies to produce a crop.

For the most part, groundwater wells within the Plan Area produce significantly less than 100 gallons per minute (gpm). Within the Plan Area, only the southern portion of OCID, as depicted on **Exhibit 1-3**, yields a significant groundwater supply. This area is

located between the Friant-Kern Canal and Alta Canal and extends from South Avenue to the southern tip of OCID. The Navalencia area, located in the northern portion of OCID between the Friant-Kern Canal and Campbell Mountain, yields some groundwater, but the total yield is relatively minor.

Due to the critical balance of the water supply in the Plan Area, the Plan Group has chosen to work together to evaluate opportunities to optimize the management of groundwater resources conjunctively with all of the available surface supplies.

1.2 - Regional Climate

The Plan Area is characterized as having hot and very dry summers, with relatively mild winters. The mild winter temperatures have made this an excellent location for growing citrus. The formation of a high fog during most winter months helps prevent temperatures from dropping below freezing. Cold, clear nights can still result in freezing temperatures, requiring frost protection measures by the growers.

The average annual precipitation in the area is approximately 13 inches with the majority of the rain falling during the winter and early spring months. The summers and early fall are predominately hot and dry. It is not uncommon to have a four or five month period without any significant rainfall during the late spring through early fall period.

1.3 - Background Information on Orange Cove Irrigation District

The Orange Cove Irrigation District (OCID) is a political subdivision of the State of California, formed for the purpose of delivering water to growers within the OCID. OCID was organized in February, 1937, and at the time comprised an area of 12,587 acres. The Navelencia and East Orosi areas were annexed in March of 1946, and, with minor inclusions and exclusions, has increased the service area to the present total of approximately 28,000 acres.

OCID is located in both Fresno and Tulare Counties at the eastern edge of the San Joaquin Valley. Refer to **Exhibit 1-4** for a map illustrating the District borders and major facilities. Refer to **Exhibit 1-5** for a map showing the general location of wells that are used in the District's groundwater level monitoring program.

The water needs of OCID are approximately 76,000 acre-feet of water annually.[1] In a year with full CVP contract entitlement, OCID has 39,200 acre-feet of surface water. The safe yield of the groundwater underlying the surface area is 27,800 acre-feet[2], which is about 9,000 acre-feet short of the total crop needs. In average and wet years, the shortage is made up from rainfall. In water short years, the only way to make up the

[1] Water Needs Analysis, Friant Unit Contractors, March 7, 1988.
[2] USBR, Geologic Study of the Orange Cove Irrigation District, August, 1947.

shortfall is from water purchases on the open market and overdrafting the groundwater supply.

OCID was formed to import surface water into the area to offset a potentially extensive reduction in cropping caused by over pumping of a very limited groundwater supply. In the mid-1930's, an extensive effort was made to secure a 250 cfs diversion entitlement from the Kings River. This effort was abandoned when an opportunity arose to contract for CVP water.

OCID entered into a contract for CVP (Friant Division) water on May 20, 1949, and started deliveries that same year, starting the term of its first 40-year contract. A renewal contract was entered into on May 23, 1989, again for a 40-year term, but has encountered extensive legal challenges based on whether the Bureau of Reclamation had adequately complied with federal environmental law. Following a series of interim renewal contracts, OCID executed a long-term renewal contract in February, 2001.

The Friant-Kern Canal is the main source of water, with OCID having 15 turnouts located between Milepost 35.87 and Milepost 53.32 along the Canal. The service area comprises a strip of land approximately 3 miles wide and 14 miles long along the western foothills of the Sierra Nevada Mountains.

1.4 - Background Information on Hills Valley Irrigation District

The Hills Valley Irrigation District (HVID) was initially formed in 1948 and since that time the land use has transformed from grazing land to a highly developed irrigated agricultural area comprised of permanent plantings that are primarily devoted to citrus. HVID currently covers 4,340 acres.

The HVID started receiving federal water in October of 1969, when it entered into a short-term water service contract with the U.S. Bureau of Reclamation. The contract made federal water available to HVID only in those years in which surplus Project water existed in Millerton Reservoir to the benefit of the Friant Division of the CVP.

In May of 1976, the District entered into a long-term water service contract with the U.S. Bureau of Reclamation. The contract is for federal water through the Central Valley Project and forms the basis for an exchange agreement with the Arvin-Edison Water Storage District (Arvin-Edison WSD). This agreement provides for an exchange of contract water between the two districts using the Friant-Kern and the Cross Valley Canals. Arvin-Edison WSD takes delivery of HVID water from the Cross Valley Canal and allows the HVID to take delivery of Arvin-Edison WSD water from the Friant-Kern Canal.

The initial contract provided for a maximum of 2,146 acre-feet to be transported annually through the State Water Project facilities (San Luis Unit/California Aqueduct) to

the Cross Valley Canal. An amendatory contract was negotiated with the Bureau of Reclamation (USBR) to increase the water supply allotment to 3,346 acre-feet annually, an increase of 1,200 acre-feet. This contract was executed in October of 1987.

In June of 1993, HVID entered into a subcontract for Cross Valley Canal water with the County of Tulare. The contract transferred canal ownership and contract rights to an additional 2,913 acre-feet of surface water supply.

Surface water is delivered to lands within two improvement districts and part of the District is not within any improvement district. The majority of the holdings are of 120 acres or less and there are 24 different landowners within the HVID. There are approximately fourteen residential dwellings within the HVID boundaries. These residences rely on groundwater for domestic supply.

1.5 - Background Information on Tri-Valley Water District

The Tri-Valley Water District (TVWD) is comprised of 2,375 acres within Fresno County. The TVWD was initially formed in 1964 for the express purpose of obtaining a surface water supply for the land within its boundaries. A wide variety of permanent crops are currently being grown, with citrus being the most prevalent. In addition, there is also a substantial amount of pasture and open land within the TVWD. The total area of TVWD is 2,375 acres. The average size landholding within TVWD is 140 acres and the range in parcel size is from 10 acres to 606 acres.

Surface water is made available through the Cross Valley Canal exchange program. The rights for the water are assigned to the 11 landowners that participate in the exchange program. Their combined holdings total about 1,590 acres. The remaining lands within the TVWD are not entitled to surface water since the owners opted to not participate in the exchange program. Of the 1,590 acres, the operators have used surface water on 767 acres to date.

1.6 - Goals and Objectives of Groundwater Management Plan

It is the intent of this Plan to develop and present alternatives available to the Plan Group to meet the following goals for preserving and enhancing the existing groundwater basin underlying the Plan Area:

- Optimize the volume of usable groundwater underlying the Plan Area.
- Preclude water exports that may degrade the long-term usable volume of water underlying the Plan Area.
- Protect the quality of groundwater underlying the Plan Area.
- Protect the reliability of unrestricted, non-export, private use of the groundwater underlying the Plan Area.

- Coordinate groundwater management efforts between the participating districts.
- Maintain local management of the groundwater resource underlying the Plan Area.
- Implement a groundwater-monitoring program to evaluate groundwater management efforts affecting the Plan Area and to provide an "early warning" system to future problems associated with the groundwater resource.
- Stabilize groundwater levels at the highest practical beneficial level in order to minimize pumping costs and energy use.
- Maximize the use of surface water, including available flood water, for beneficial use.

In addition, the Plan Group will take a proactive role in the legislative process. They will participate in development of sound legislation concerning groundwater management if it becomes necessary. They will also take an active role in opposing any legislation that is detrimental to local groundwater management efforts.

1.7 - Statutory Authority for Groundwater Management

The GMP adopted by the Plan Group in 1997 was done so according to statutory language in Assembly Bill No. 3030 (AB 3030). The Plan has been updated to include components listed in California Senate Bill No. 1938 (SB 1938). AB 3030, as chaptered, (California Water Code, Division 6, Part 2.75, SEC. 10750-10753.9) grants specified "local agencies" authority to undertake groundwater management. The participants in this joint venture are such local agencies and are empowered to manage groundwater under the provisions of AB 3030. AB 3030 also confers upon local agencies the powers of a water replenishment district. These authorities remained unchanged with the amendments to the law provided by SB 1938. In addition, agencies adopting a Plan are authorized to enter into agreements with other local agencies or private parties to manage mutual groundwater supplies, including those existing in overlapping areas, as necessary to implement the Program.

1.8 - Adoption of Plan

Refer to **Appendix A** for documentation on the adoption of the GMP and the public process that was followed.

City of Orange Cove

OCID solicited comments from the City of Orange Cove on the draft GMP. OCID would like to improve cooperative groundwater management with the City of Orange Cove since they share the same groundwater aquifer.

Groundwater Advisory Committee

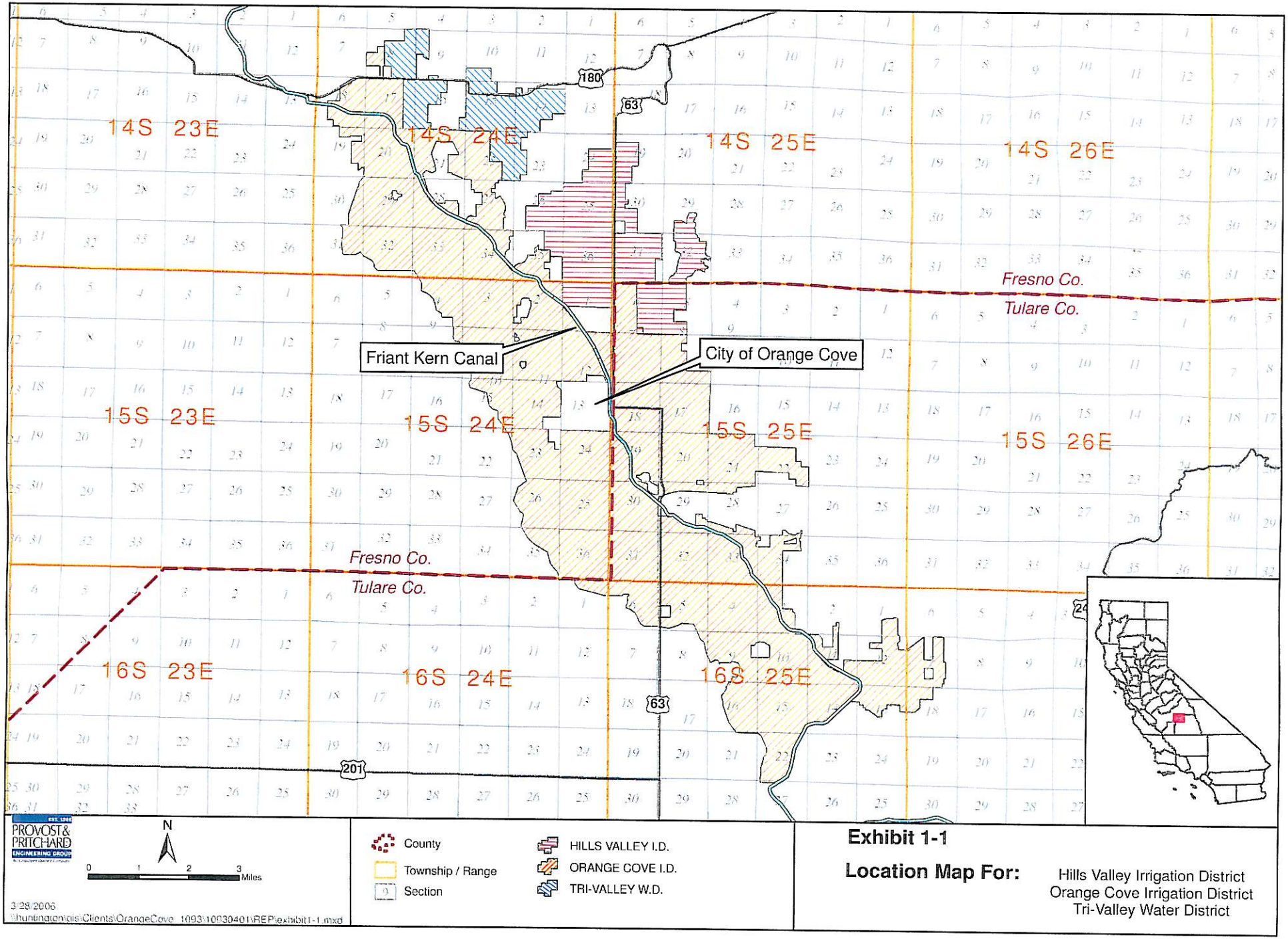
The Groundwater Advisory Committee (GAC) was directly involved in the development of the GMP. All GAC members were given the Executive Summary for the GMP as well as the opportunity to comment on the entire document. At a GAC meeting on September 27, 2005, the new components required for GMPs were presented and explained to the GAC. At a meeting on December 6, 2005, the GAC members were presented with the proposed implementation plan for the GMP and given an opportunity to provide comments and add items.

Intention to Update Groundwater Management Plan

On November 24, 2004 and December 1, 2004, the Plan Group published notices of a hearing on the Resolution of Intention to Update the Plan Group's Groundwater Management Plan in the Reedley Exponent. As required, the notices included information on how members of the public may participate in the preparation of the Groundwater Management Plan. On December 8th, 2005 a noticed public hearing was conducted at the Orange Cove Irrigation District's office, and representatives from OCID, HVID and TVID agreed to update the Plan Group's Groundwater Management Plan, pursuant to Senate Bill No. 1938. No comments were provided by any public participants on the intention to update the Plan. The Plan Group adopted a resolution (No. 2005-14) to update the GMP. Copies of the resolution were published in the Reedley Exponent on December 29, 2005 and January 5, 2006.

Adoption of Groundwater Management Plan

On June 1 and June 8, 2006, the Plan Group published notices in the Reedley Exponent on a hearing to adopt the updated Groundwater Management Plan. On June 14, 2006 a noticed public hearing was conducted at the Orange Cove Irrigation District's office, and the Board of Directors of OCID, and representatives from HVID and TVWD adopted a resolution (No. 2006-04) to adopt the updated Groundwater Management Plan, pursuant to Senate Bill No. 1938. No comments were provided by any public participants on the resolution to adopt the updated Plan. Copies of the resolution were published in the Reedley Exponent on _____ and _____.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Fresno Co.
Tulare Co.
Fresno Co.
Tulare Co.
Friant Kern Canal
City of Orange Cove
180
63
63
201
24
PROVOST& PRITCHARD ENGINEERING GROUP
N
0 1 2 3 Miles
3/28/2006
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County
Township / Range
Section
HILLS VALLEY I.D.
ORANGE COVE I.D.
TRI-VALLEY W.D.
Exhibit 1-1
Location Map For:
Hills Valley Irrigation District
Orange Cove Irrigation District
Tri-Valley Water District

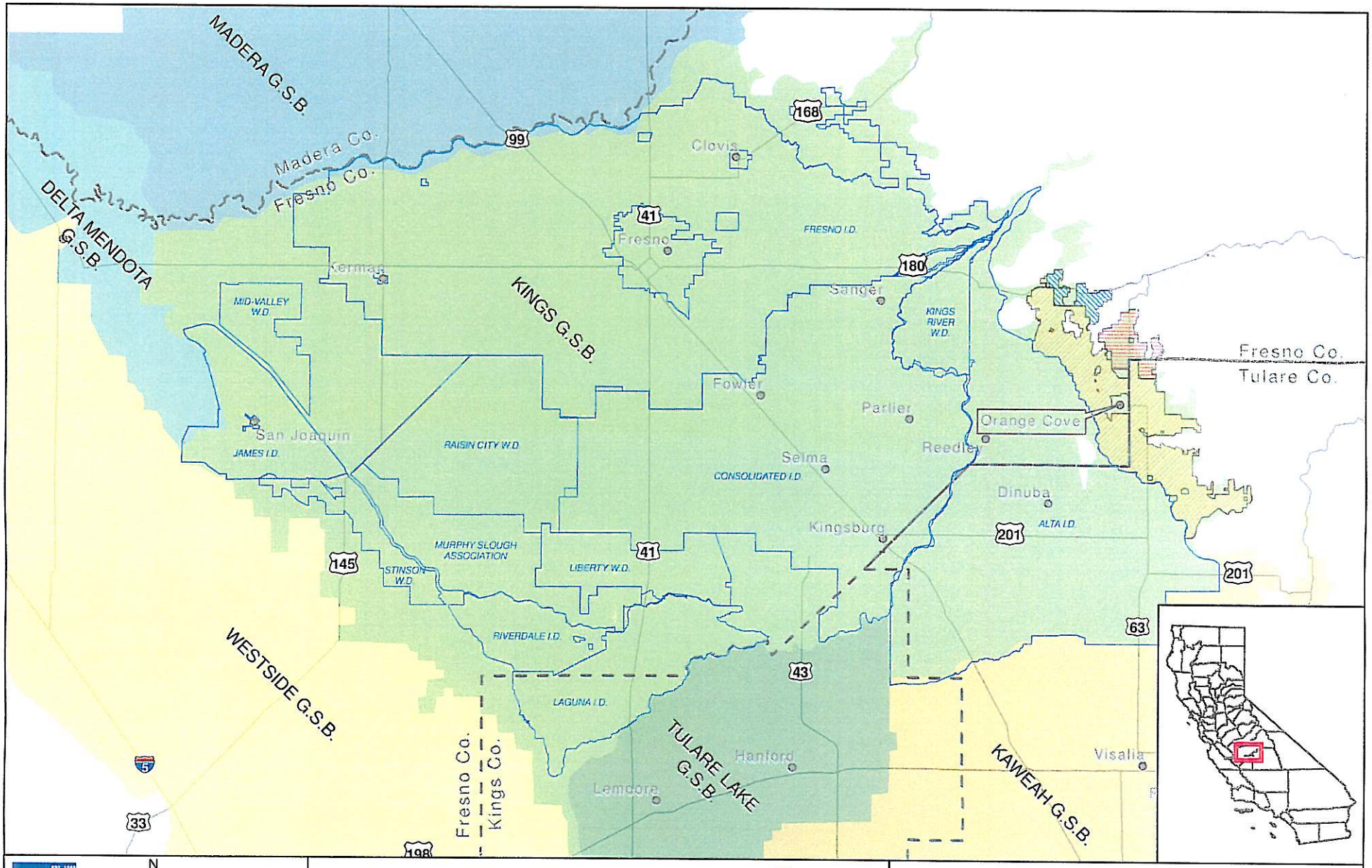


Exhibit 1-2

Groundwater Basin Map For:

Hills Valley Irrigation District
Orange Cove Irrigation District
Tri-Valley Water District

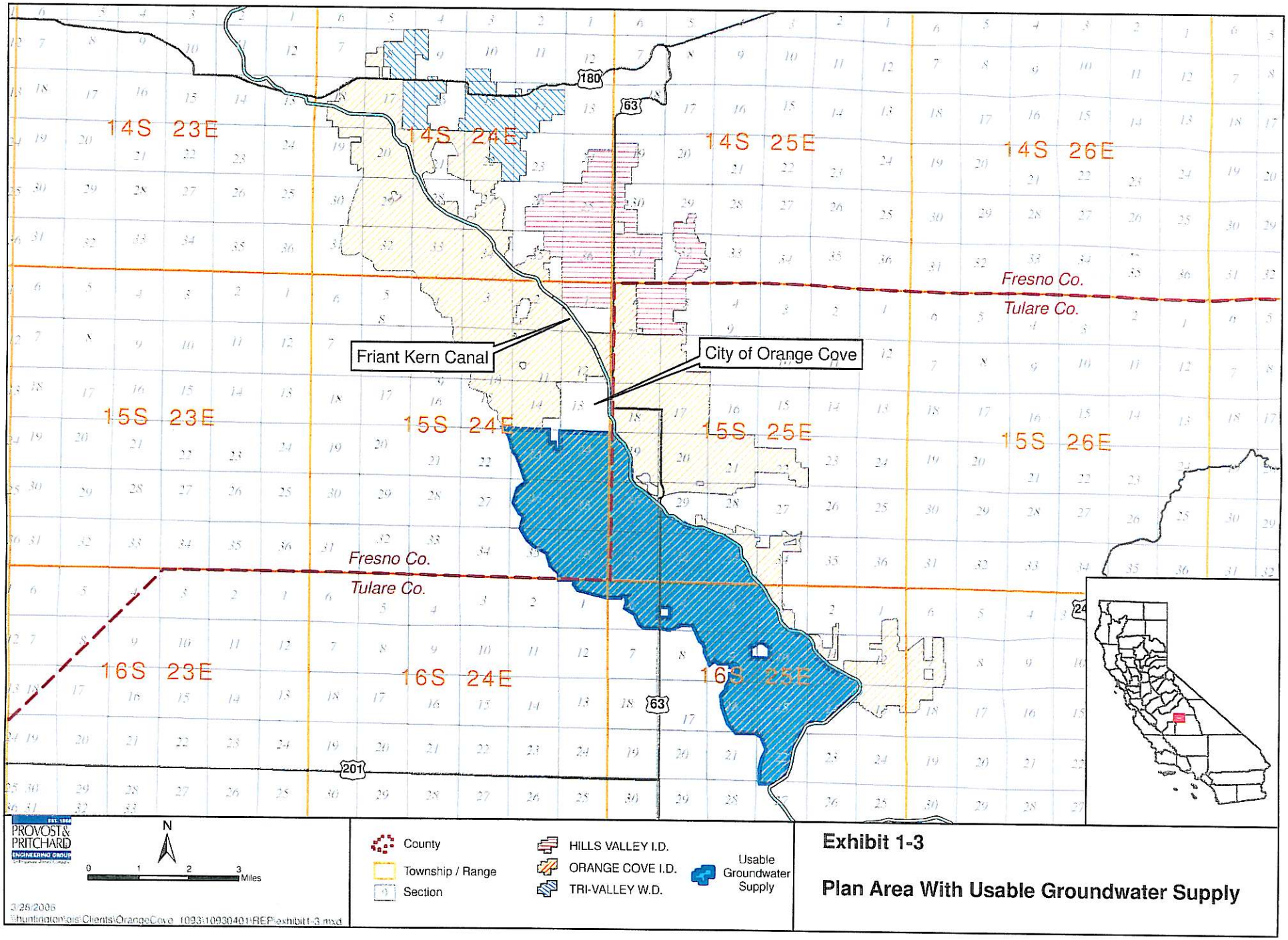
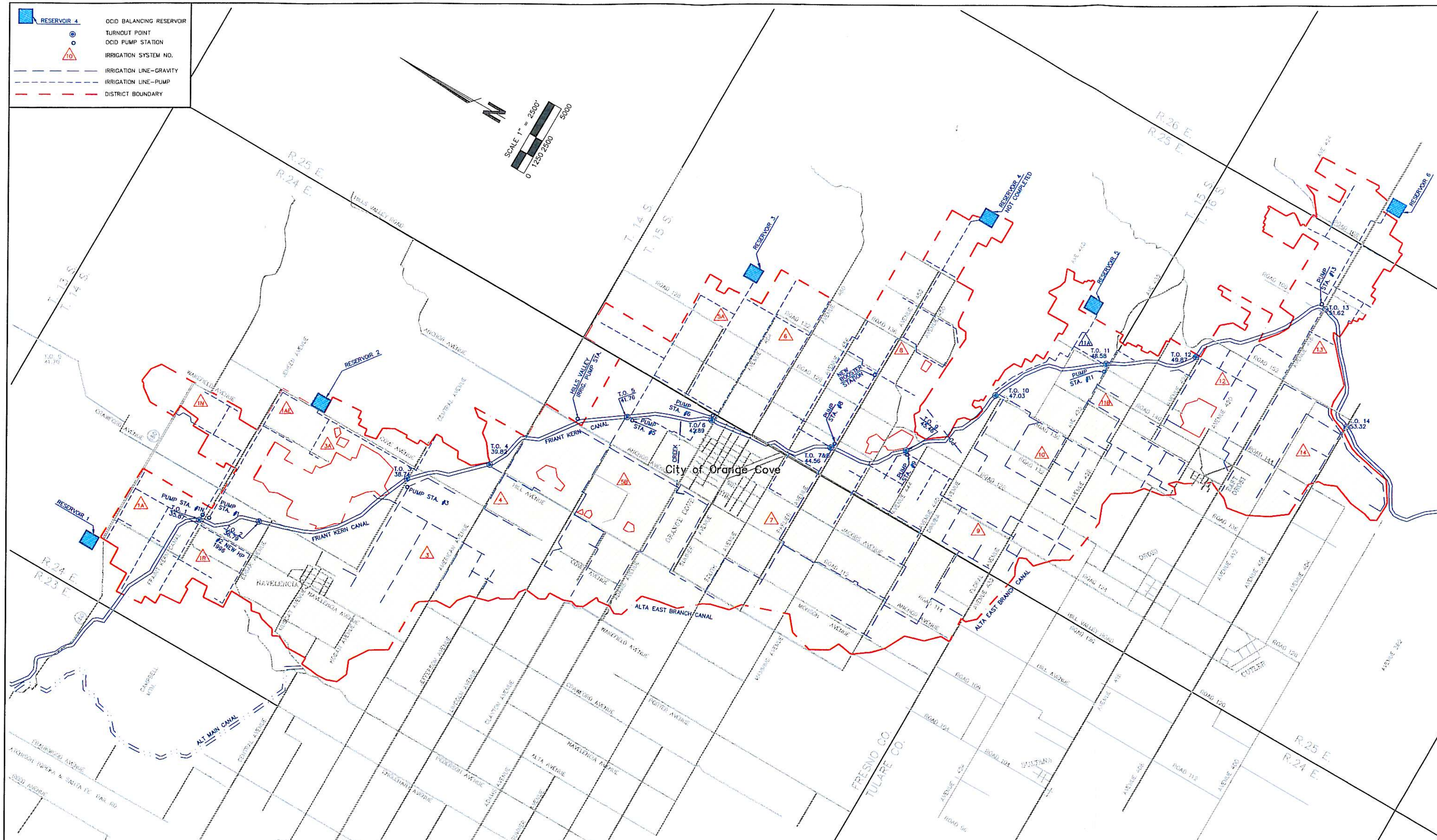


Exhibit 1-3

Plan Area With Usable Groundwater Supply


RESERVOIR 4
OCID BALANCING RESERVOIR
TURNOUT POINT
OCID PUMP STATION
IRRIGATION SYSTEM NO.
IRRIGATION LINE–GRAVITY
IRRIGATION LINE–PUMP
DISTRICT BOUNDARY
N
SCALE 1" = 2500'
0 1250 2500 5000
RESERVOIR 1
RESERVOIR 2
RESERVOIR 3
RESERVOIR 4 NOT COMPLETED
RESERVOIR 5
RESERVOIR 6
City of Orange Cove
FRIANT KERN CANAL
ALTA EAST BRANCH CANAL
ALT MAIN CANAL
HILLS VALLEY IRRIG. PUMP STA.
NEW BOOSTER STATION
T.O. 1 35.87
T.O. 2 36.79
T.O. 3 38.74
T.O. 4 39.82
T.O. 5 41.76
T.O/6 42.89
T.O. 7&8 44.56
T.O. 9 45.48
T.O. 10 47.03
T.O. 11 48.58
T.O. 12 49.87
T.O. 13 51.62
T.O. 14 53.32
PUMP STA. #1N
PUMP STA. #1
#2 NEW HP 1996
PUMP STA. #3
PUMP STA. #5
PUMP STA. #6
PUMP STA. #8
PUMP STA. #9
PUMP STA. #11
PUMP STA. #13
1A
1B
1N
1AE
3A
3
4
5A
5B
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11A
11B
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13
14
R.25 E.
R.24 E.
R.23 E.
R.26 E.
T.13 S.
T.14 S.
T.15 S.
T.16 S.
FRESNO CO.
TULARE CO.
HAVELENCIA
EAST OROSI
OROSI
CUTLER
SULTANA
CAMPBELL MTN.

IRRIGATION DISTRICT BOUNDARY MAP
for
ORANGE COVE IRRIGATION DISTRICT

PROVOST & PRITCHARD ENGINEERING GROUP
EST. 1968
286 WEST CROMWELL AVENUE FRESNO, CALIFORNIA 93711-6162
559-449-2700 FAX 559-449-2715

SCALE: 1"=2500'
DRAWN BY: FK
REVISED 10/27/05 - TJP

Job No. 10930401

OCID

Dwg. No. 20040019

EXHIBIT 1–4 DISTRICT MAP

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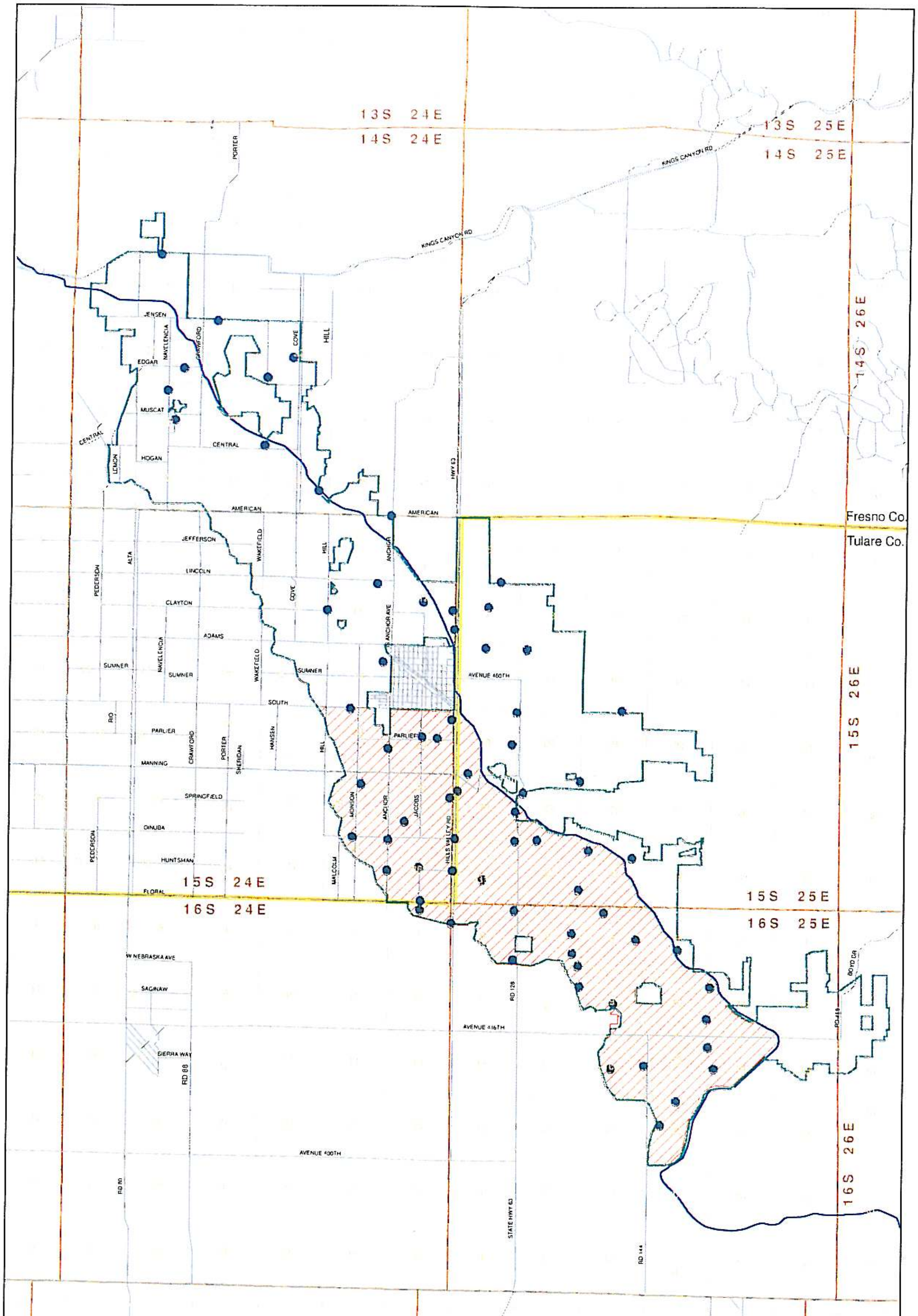
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KINGS CANYON RD
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Fresno Co.
Tulare Co.
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15S 25E
16S 25E
16S 26E
JENSEN
EDGAR
MUSCAT
CENTRAL
HOGAN
AMERICAN
JEFFERSON
LINCOLN
CLAYTON
ADAMS
SUMNER
SOUTH
PARLIER
MANNING
SPRINGFIELD
DINUBA
HUNTSMAN
FLORAL
AVENUE 460TH
AVENUE 416TH
AVENUE 400TH
W NEBRASKA AVE
SAGINAW
SIERRA WAY
HWY 63
STATE HWY 63
RD 128
RD 144
RD 88
RD 80
PEDERSON
ALTA
NAVELENCIA
CRAWFORD
PORTER
SHERIDAN
HANSEN
WAKEFIELD
COVE
HILL
ANCHOR
ANCHOR AVE
MONSON
JACOBS
MALCOLM
HILLS VALLEY RD
LEMON
BOYD CR

N

0 0.5 1 1.5 2
Miles

OCID Boundary (Teal Data Center)
Section
Usable Groundwater Area
Well Location

Exhibit 1-5

Orange Cove Irrigation District
Well Location Map

2 - ISSUES IMPACTING GROUNDWATER SUPPLY

The Orange Cove Irrigation District conjunctively uses surface water with limited use of groundwater. TVWD and HVID primarily use surface water with even more limited use of groundwater than OCID. Since OCID is only able to deliver 1.4 acre-feet per acre from their surface water supplies, effective rainfall and groundwater pumping by the growers themselves are required to meet the balance of crop requirements. Unfortunately, in the Plan Area, only the southern portion of OCID has a significant, usable groundwater supply. Therefore, the Plan Area faces some significant water management challenges. Specific issues impacting the area's water supply are discussed below.

2.1 - Inadequate Dry-Year Supplies

Because the contract surface water supplies are inadequate to meet the total Plan Area needs, the availability of dry year water supplies is the most critical issue impacting the Plan Area. The main issues impacting dry-year water supplies are inadequate surface water carry-over storage and inadequate groundwater storage.

Surface Storage

Millerton Lake provides the primary surface storage element for the Friant Unit of the Central Valley Project (CVP). Although Millerton Lake has a maximum storage capacity of 520,000 acre-feet, only 385,000 acre-feet of storage is usable due to the outlet elevations into the Friant-Kern and Madera Canals. Millerton Lake lacks sufficient carry-over storage capacity to balance the wet and dry year need for conservation storage due to both the outlet conditions and the relationship of storage capacity to San Joaquin River runoff.

Groundwater Supply

The Plan Area is characterized by very limited groundwater storage capability. Most of the groundwater is a "pass through" water supply, moving into the ground in the foothills and passing along the surface or in the fractures of the bedrock through the Plan Area on its way to the greater San Joaquin Valley groundwater basin. Because of the limited supply of groundwater, it is critical that the Plan Group has a comprehensive plan for optimizing groundwater availability during dry year conditions.

2.2 - Water Transfers and Exchanges

Because of the limited availability of groundwater supplies, transfers out of the area resulting in increased groundwater use will be discouraged. However, transfers will be evaluated on a case-by-case basis and would be permitted if the water is transferred for banking purposes or the transfer is approved by the Board of Directors. OCID lacks any formal arrangements where it can exchange water between wet and dry years to offset extreme dry year shortages. However, HVID and TVWD have entered into an

agreement with the Delano-Earlimart Irrigation District whereby they have banked a one-year supply of water that can be returned in dry years. This agreement is currently being renegotiated.

The Cross Valley Canal connects the California Aqueduct in western Kern County with lands in the central portion of Kern County. This facility allows water originating in the Delta to be delivered to lands in Kern County. Through the use of this facility, water exchanges have been made with other districts in Kern, Fresno, and Tulare Counties that would have otherwise been unable to receive west-side water supplies. The Arvin-Edison Water Storage District is the principal entity used to complete these exchanges. These exchanges have had some success in improving water reliability in the Plan Area.

2.3 - Groundwater Quality

For irrigation purposes, there are no known water quality problems that currently impact the use of groundwater in the Plan Area. The City of Orange Cove lies within the Plan Area, but does not present a major threat to groundwater quality. For municipal purposes, most groundwater in the area exceeds the permissible level of nitrates for drinking water, but is still adequate for irrigation use. The Plan Group members recognize that groundwater quality and groundwater quantity are interdependent and should be considered in an integrated manner. Therefore, they will continue to monitor groundwater quality collected by other agencies to ensure their groundwater supply is not diminished due to quality problems. See Section 3.4 – Historic Water Quality for more information on groundwater quality in the area, and Section 6.2 – Groundwater Quality Monitoring for information on groundwater quality monitoring.

2.4 - Local Agency Groundwater Management Cooperation

The Districts involved in this plan have sought formal arrangements with other districts that have good groundwater supplies for water banking arrangements. In a typical banking arrangement a district (depositor) banks its unused wet-year supplies with an agency (banker) that has a good groundwater basin. In dry years when the depositor's surface supply is short, it then calls on the water it has stored in the banker's groundwater basin. In this way, water is stored in the ground for use in years when the surface supply is insufficient to meet demands. The problem encountered most frequently is that districts willing to bank water have very limited ability to return water in a dry year condition. This further emphasizes the need for increased surface storage with a carry-over capability or a coordinated water banking effort on a regional basis.

3 - GEOLOGY AND HYDROGEOLOGY

This section provides information on the local and regional geology, hydrogeology, historical water quality and historical groundwater levels in the Plan Area. The geology of the Orange Cove Irrigation District (OCID) is extensively documented in a report prepared by the USBR in 1947 entitled "Geologic Study of the Orange Cove Irrigation District". Much of the information presented below was obtained from this report. No other major geologic studies in the Plan Area are known to have been performed since 1947.

3.1 - Groundwater Basin

The Plan Area lies within the Kings Groundwater Basin, which is a sub-basin of the San Joaquin Valley Groundwater Basin. The Kings Groundwater Basin extends from the Sierra Nevada foothills on the east to the San Joaquin Valley trough on the west, and from the San Joaquin River on the north to roughly the Fresno County line on the south. Refer to **Exhibit 1-2** for the location of the Districts in relation to the Kings Groundwater Basin.

The Kings Basin covers an area of 976,000 acres. In general, groundwater quality throughout the Basin is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are high total dissolved solids (TDS), nitrate, arsenic, and organic compounds. The aquifers are generally quite thick in the San Joaquin Valley subbasins with the groundwater wells commonly exceeding 1,000 feet in depth. Typical well yields in the San Joaquin Valley range from 300 gpm to 2,000 gpm with yields of 4,000 gpm possible. The smaller basins in the mountains surrounding the San Joaquin Valley have thinner aquifers and generally lower well yields averaging less than 500 gpm. DWR has also identified the Kings Groundwater Basin as being 'critically overdrafted'.

3.2 - Local Geology

The foothills of the Sierra Nevada bound the eastern portion of the Plan Area. Some of these foothills protrude westward as spurs into the alluvial plain of the San Joaquin Valley. These spurs form a series of coves that are characteristic of the Plan Area's eastern boundary. The western portion of the Plan Area is a transition between these coves and the alluvial plain of the valley proper. The topography is gently rolling with average slopes of 20 to 25 feet to the mile in the eastern portion, leveling off to 15 feet per mile or less in the western portion.

Alluvium and Bedrock

The soil in the area is derived mainly from granitic and quartz diorite rock with more isolated areas derived from other basin igneous materials. Roughly 80% of the Plan Area is covered by clay and clay loam soils underlain, for the most part, by iron oxide

hardpan. The clay soils are intermingled with more pervious material in the shape of many discontinuous lenses and stringers of sandy clay, sand, and gravel. When these lands were developed for irrigation they were normally ripped to depths of 5 to 6 feet. In irrigated areas this has removed the hardpan and allowed adequate drainage during irrigation. However, the only soils conducive to groundwater recharge are along the old stream courses and the present day stream and drainage channels.

Granite rock makes up the hills surrounding the OCID on the east, forms the outlying hills, and underlies the sediments throughout the District. A granite shelf with shallow cover underlies the greater part of the Plan Area. The granite is abundantly jointed and probably faulted. The close spacing of the joints has greatly facilitated weathering. In OCID, the granite shelf slopes gently from the easterly boundary of the Plan Area, where the cover is 20 feet or less, west to a point where the cover is about 100 feet. At this point the shelf drops off sharply. The start of the deeper alluvium is approximated by the existing Atchison, Topeka, and Santa Fe railroad right-of-way. Lines of equal depth to granite within the Plan Area are shown in **Exhibits 3-1.** In HVID and TVWD, the depth to 'hard' rock varies greatly within short distances; some areas have rock outcroppings that come to the surface and then drop off rapidly to depths of greater than 20 feet.

3.3 - Hydrogeologic Characteristics

Aquifer Characteristics

The aquifer consists of clay, sands, decomposed granite, and hard rock. Sandy lenses in the sediments are water-bearing but, as a rule, are discontinuous and have low yields. The granite and metamorphic rocks, where unweathered, are virtually impermeable. However, the coarse-grained granite weathers easily and breaks down into loose and coarse-grained mass. The weathered granite is one of the most important aquifers in the Plan Area and is the only important one in those portions east of the Friant-Kern Canal where the granite is within 30 feet of the surface. The thickness of the weathered zone varies greatly and has not been defined with any reliable methodology.

Groundwater Movement/Transmissivity

The lateral flow of groundwater from one portion of OCID to another is believed to be impeded by underground ridges and troughs on the surface of the granite shelf underlying the District. However, no part of the Orange Cove area is considered an enclosed basin. There are no granite barriers to prevent the ingress of groundwater from the regions to the west and south, or to prevent the egress of groundwater into those regions.

In the Hills Valley and Tri-Valley areas, the depth to the hard rock varies from 2 to 20 feet below the ground surface. Generally, the materials over the base rock are

relatively coarse and permeable. The parent rock material has cracks and fissures that promote some water flow. The combination of the permeable nature of these upper soils, along with the gradient caused by the dipping earth materials, promotes the lateral movement of excess rainfall and irrigation water downgradient. This lateral movement may be partially impeded in some areas by barriers or by the reduction in the groundwater gradient in relatively flat, swale-like areas.

Groundwater Storage

The proximity of the granite layer beneath the surface of the Plan Area allows for little storage capacity in the shallow alluvium above. The upper few feet of the granite layer are the most decomposed and offer the largest storage capacity. This is also the most defined aquifer in the Plan Area. Hence, there is limited capacity available for cyclic storage of groundwater.

Specific Yield

Specific yield is the ratio of the volume of water that a given mass of saturated rock or soil will yield to that volume of mass. Specific yields in OCID were estimated by the USBR based on twenty percolation tests and data from similar groundwater basins (USBR, 1947). Specific yields for general soils types within OCID are listed in Table 3.1.

Table 3.1 – Specific Yield by Soil Type

Soil Type	Specific Yield
Gravel and coarse sand	34.8%
Medium and fine sand, sandy loam	24.2%
Very fine sand, and sandy silt	7.5%
Fine sandy loam	5.8%
Silty clay, sandy clay loam, sandy clay	4.2%
Clay, clay loam	2.9%

Specific yields by sub-area are listed in Table 3.2. The sub-areas are illustrated on **Exhibit 3-2.**

Table 3.2 - Specific Yield by Sub-Area

Sub-Area	Specific Yield
East Orosi	6.5%
Sand Creek	8.4%
Alta and Sand Creek	8.3%
Alta Canal	8.3%
Hills Valley	8.2%
Citrus Cove	7.8%
Wahtoke	7.8%

Well Yields

Well yields in the Plan Area are generally poor due to the less permeable, fine-grained shallow soils, which are predominant over the greater part of the Plan Area. The most favorable pumping area is in the zone where depth to granite exceeds 100 feet. In addition, in some wells, a considerable amount of the yield comes from the decomposed granite.

The groundwater basin, per se, is almost non-existent in the district. The southern portion of OCID that is west of the Friant-Kern Canal contains some basin water (see **Exhibit 1-3**). Typically, this is the area where wells have capacities greater than 100 gallons per minute. In general, the rest of OCID has low groundwater yield. In HVID, TVWD and the northern portion of OCID (Navalencia Area) some groundwater is available from some shallow wells and wells drilled into hard rock. The yields of these wells are small, normally 30-100 gal/min, and in most cases would only support a limited amount of permanent farming in the absence of surface water. However, these wells are useful as a supplemental irrigation supply and in controlling the buildup of a perched water table in some areas.

In the area of shallow alluvium (which covers the entire area east of the Friant-Kern Canal) the decomposed granite forms a contact between the granite shelf and the overlying alluvium. This area is relatively permeable and should afford good drainage when the slope of the water table is sufficiently steep to maintain flow of the groundwater.

3.4 - Historic Water Quality

Groundwater in the area is generally of suitable quality for irrigation purposes and there are no known water quality problems that currently impact the agricultural water use in the Plan Area. Although the City of Orange Cove lies within the Plan Area, and the City's Wastewater Treatment Plant has a groundwater-monitoring network under regulation by the Regional Water Quality Control Board, there is no indication, to date, that there are any major threats to the groundwater quality. For municipal purposes, most groundwater in the area of the treatment plant exceeds the permissible level of nitrates for drinking water, but is still suitable for agriculture.

3.5 - Historic Groundwater Levels

Groundwater levels in the Plan Area have been monitored from numerous wells since the early 1900's. Long-term groundwater level data is included in the Orange Cove Irrigation District's database and can be found on the Department of Water Resources website. After OCID obtained a Central Valley Project water contract in the late 1940's the groundwater level began to rise and is now fairly stable. However, the groundwater level does fluctuate on the order of a few feet from year to year. These recent water table fluctuations are likely indicative of the limited storage capacity available in the immediate vicinity. In the area with a sustainable groundwater supply, depth to groundwater ranged from about 10 feet to 60 feet in 2002.

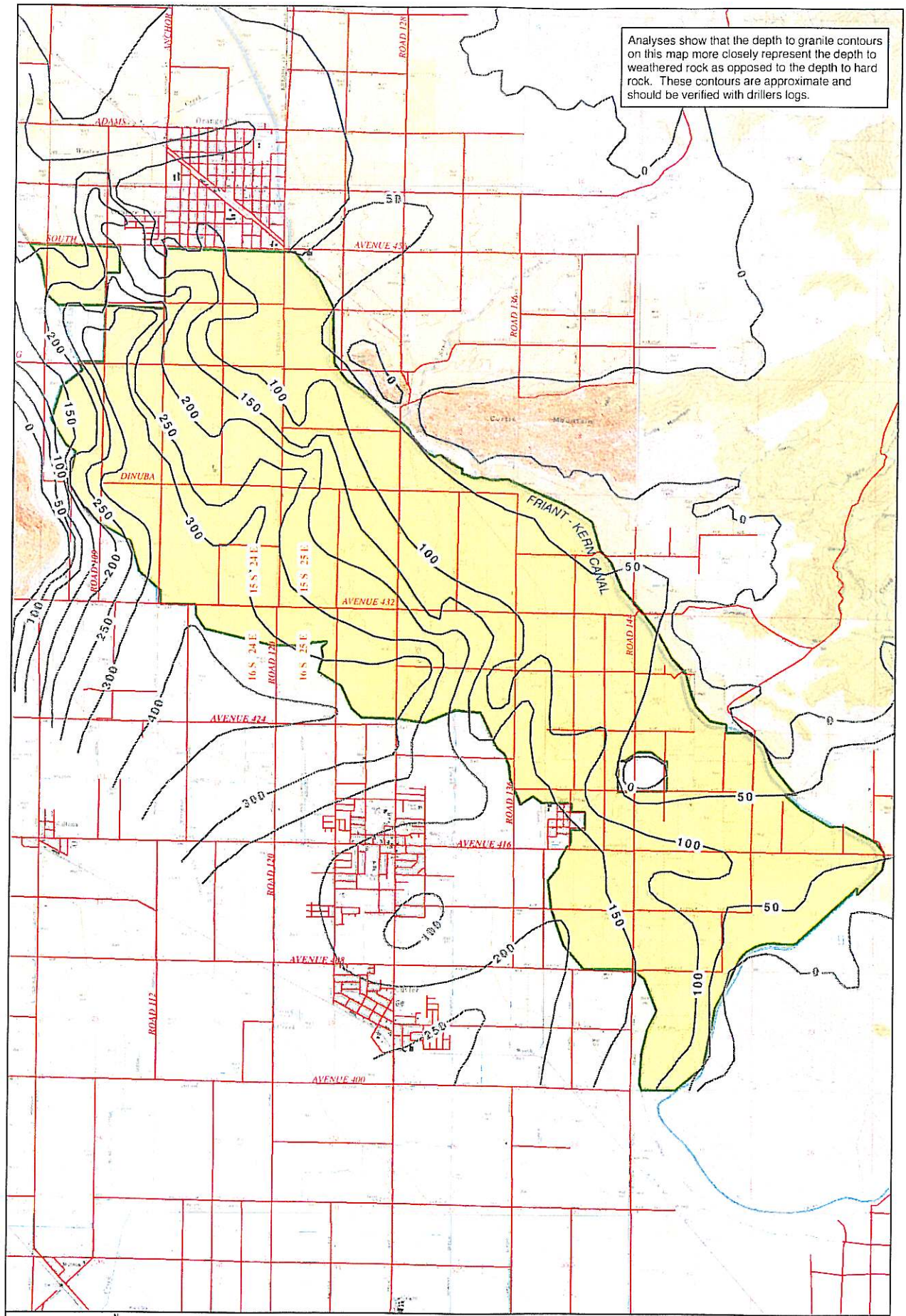
Analyses show that the depth to granite contours on this map more closely represent the depth to weathered rock as opposed to the depth to hard rock. These contours are approximate and should be verified with drillers logs.
ADAMS
SOUTH
DINUBA
AVENUE 432
AVENUE 424
AVENUE 416
AVENUE 408
AVENUE 400
ROAD 128
ROAD 136
ROAD 144
ROAD 120
ROAD 112
ROAD 109
15 S, 24 E
15 S, 25 E
16 S, 24 E
16 S, 25 E
FRIANT - KERN CANAL
Curtis Mountain
0
50
100
150
200
250
300
400
N
0 1,250 2,500 3,750 5,000 Feet
1 inch equals 3,750 feet
OCID Boundary
OCID Area With Sustainable Groundwater Supply
Road
Depth to Surface of Granite Contour (ft) *
*100 foot contours digitized and 50 foot contours estimated with heads-up method from scanned image
Source: United States Bureau of Reclamation
Geologic Study of the Orange Cove Irrigation District, August 15, 1947
Orange Cove Irrigation District
Depth to Granite Contours

Exhibit 3-1

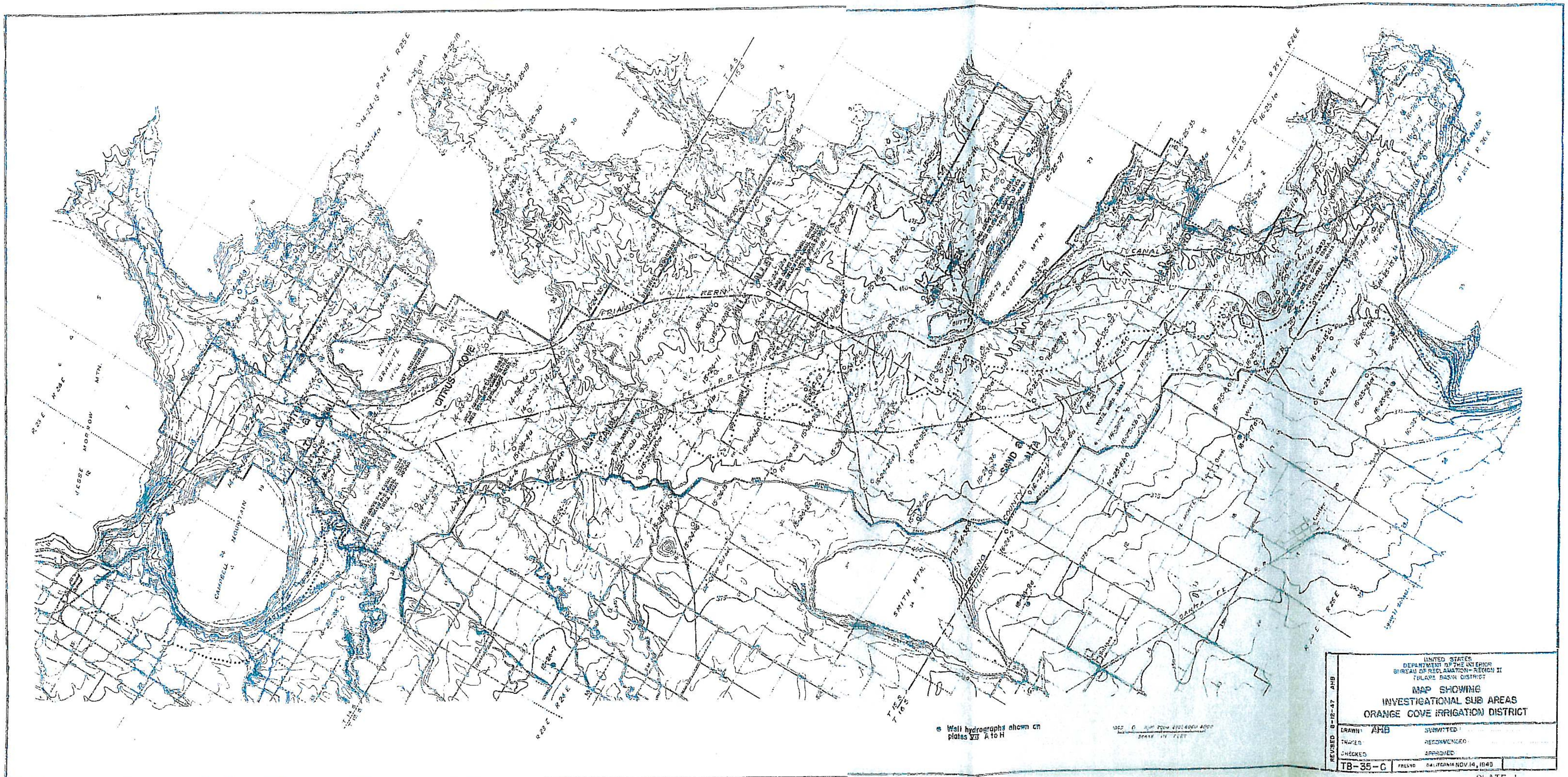
JESSE MORROW MTN.
GRANITE HILL
NOT INCLUDED IN COMPUTATIONS
CITRUS COVE
CAMPBELL MOUNTAIN
FRIANT KERN
CANAL
SANTA FE R.R.
ALTA CANAL
CURTISS MTN.
SMITH MTN.
FRESNO
TULARE
COUNTY
SAND ALTA
R 23 E
R 24 E
R 25 E
R 26 E
T 15 S
T 16 S
Well hydrographs shown on plates VII A to H
SCALE IN FEET
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION - REGION II
TULARE BASIN DISTRICT
MAP SHOWING
INVESTIGATIONAL SUB AREAS
ORANGE COVE IRRIGATION DISTRICT
REVISED 8-12-47 AHB
DRAWN: AHB
TRACED:
CHECKED:
SUBMITTED:
RECOMMENDED:
APPROVED:
TB-35-C
FRESNO CALIFORNIA NOV. 14, 1945

PLATE I

4 - BASIN MANAGEMENT OBJECTIVES

The general objectives of the Plan Group are to enhance and preserve the long-term viability of the groundwater supply within the Plan Area with respect to both quantity and quality by engaging in local management activities.

The Plan Groups basin management objectives include the following primary elements:

- Stakeholder Involvement;
- Groundwater Monitoring;
- Groundwater Resources Protection;
- Groundwater Sustainability;
- Groundwater Operations; and
- Groundwater Planning and Management.

This plan includes a number of activities that the Districts intend to evaluate or undertake for each of these primary elements. Such activities may be performed solely by an individual District or in cooperation with one or more local agencies, private parties, or other District(s) in the Plan Group. Specific details on the basin management objectives are found in subsequent sections. The subsequent sections describe existing or planned management actions to achieve the management objectives, and explain how each basin management objective will contribute to a more reliable groundwater supply.

5 - STAKEHOLDER INVOLVEMENT

5.1 - Relationships with Other Agencies

The Plan Group is located in the Kings Groundwater Basin, which extends beyond many political boundaries and includes other municipalities, irrigation districts, water districts, private water companies, and private users. In addition, the City of Orange Cove is an enclave within the Plan Area. This emphasizes the importance of inter-agency cooperation, and the Plan Group members have historically made efforts to work conjunctively with many of these other water management agencies.

Below is a list of agencies that the Plan Group has worked with in managing the local groundwater:

- County of Fresno
- City of Orange Cove
- Tulare County
- Alta Irrigation District
- Friant Water Authority
- Department of Water Resources
- United States Bureau of Reclamation

Existing cooperative efforts with these agencies will be maintained and are described in Section 5.2.

Over 95 percent of the Fresno County residents are directly dependent upon groundwater for domestic and industrial purposes. The County of Fresno therefore recognizes the need for proper groundwater management and in their 1996 Groundwater Management Plan, the County of Fresno states:

> "As the only agency overlying all groundwater basins within the County, the County of Fresno intends to provide the necessary structure assuming responsibility for overall coordination of groundwater management activities within its boundaries. As in all groundwater management elements contemplated in this plan, the County's effort will be one of cooperation with affected agencies."

The Plan Group will work cooperatively with Fresno County to facilitate this goal. Fresno County also has an ordinance regulating the extraction and transfer of water from the County (see **Appendix B**). The Plan Group supports and adheres to this ordinance. The Plan Group will also work cooperatively with Tulare County on groundwater management efforts.

5.2 - Plan to Involve Other Agencies

The District will work cooperatively with other agencies within the Kings Groundwater Basin to facilitate protection and enhancement of the regional groundwater resources, and to avoid, whenever possible, duplicative or inconsistent groundwater management

efforts. Cooperative working relationships can be achieved through the sharing of data, inter-agency committees, interagency meetings, memorandums of understandings, and formal agreements.

The Districts will continue to participate in the following inter-agency agreements and committees:

1. Meetings and cooperative efforts involving the joint authors of this Plan (Orange Cove Irrigation District, Hills Valley Irrigation District and Tri-Valley Water District)
2. Sharing of groundwater level data with the Alta Irrigation District
3. Submission of groundwater level data to the DWR, USBR and Fresno County
4. Meetings with a Groundwater Advisory Committee (see section 5.3)

In addition, OCID will also encourage the City of Orange Cove to resume tertiary treatment at their water treatment plant. OCID formerly bought treated water from the City and delivered it to their canal system for agricultural use. The City of Orange Cove is now only using secondary treatment methods and hence OCID has suspended their use of the treated water. OCID sees the benefits to both parties if tertiary treatment and deliveries to OCID canals are resumed. These benefits would include local water conservation, reduced mounding problems near the water treatment plant, income for the City of Orange Cove, and a more reliable water supply for OCID.

5.3 - Groundwater Advisory Committee

A Groundwater Advisory Committee (Committee) has been formed to update, plan, monitor and evaluate the technical progress made in achieving the goals of this Plan. This committee has also assisted with the Orange Cove Irrigation District's Groundwater Monitoring and Drought Preparedness Program Study (funded under AB 303 Local Groundwater Assistance Fund), and will assist when possible with other special groundwater projects. The committee is comprised of landowners who volunteered to participate, OCID staff, and a representative for neighboring irrigation and water districts.

The Committee will attempt to meet annually or more frequent if deemed appropriate and will have the following responsibilities:

1. Review trends in groundwater levels;
2. Review trends in groundwater quality;
3. Evaluate the effectiveness of current groundwater management policies and facilities;
4. Discuss the need for new groundwater management policies and procedures;
5. Discuss the need for new groundwater facilities;

6. Evaluate the progress of on-going groundwater related projects;
7. Assess the overall progress in implementing the programs outlined in the Groundwater Management Plan;
8. Recommend updates or amendments to the Groundwater Management Plan;
9. Provide coordination among the Plan Group (OCID, TVWD and HVWD);
10. Monitor and evaluate the implementation of the proposed OCID drought preparedness program;
11. Educate the landowners on the merits and importance of various groundwater management activities, such as water level monitoring and water quality testing;
12. Document the Committee's comments and recommendations so they can be incorporated into annual groundwater reports.

6 - MONITORING PROGRAM

The Plan Group's groundwater monitoring program includes two elements: groundwater-level monitoring and groundwater-quality monitoring. The monitoring program is intended to:

1. Provide warning of potential future problems;
2. Use data gathered to generate information for water resources evaluation;
3. Develop meaningful long-term trends in groundwater characteristics;
4. Provide data comparable from place to place in the Plan Area; and
5. Better characterize the quality of well water in the Plan Area.

Following is a discussion on groundwater level monitoring, groundwater quality monitoring and monitoring protocols. **Exhibit 6-1** is a map illustrating the monitoring sites for groundwater levels and groundwater quality.

6.1 - Groundwater Level Monitoring

The Orange Cove Irrigation District has formerly measured water levels each spring and fall in about 30 wells. They plan to expand the program to include 60 to 70 wells. **Exhibit 6-1** illustrates the location of all the wells that would be monitored. **Exhibit 6-2** includes a list of these wells and their attributes (well depth, screened intervals, type of well, etc.).

The groundwater level data will be used to generate groundwater elevation contours, estimate groundwater storage, evaluate short-term and long-term trends in water levels, and evaluate the impacts of rainfall, surface water availability, groundwater recharge, and other factors on groundwater levels.

Orange Cove Irrigation District Database

The OCID updated their groundwater database in 2005. The new database includes an improved user interface, additional database fields, and a link to Geographic Information Systems software. The database stores the following information:

1. Groundwater level data for about 30 wells (semi-annual measurements from 1990-2003);
2. Well hydrographs;
3. Specific well attribute information including pump type, model, motor size, discharge pipe size, and a digital photo of the well;
4. Surveyed locations and elevations for each well; and
5. Various reports for presenting and evaluating changes in groundwater levels.

Groundwater Contour Maps

Groundwater contour maps will be prepared for the Plan Group's Annual Groundwater Report. Groundwater contour maps are good analytical tools for determining the effects and impacts of natural (weather) and artificial (man-made) phenomena on the aquifer, including droughts, wet years, extraction, and recharge activities. Furthermore, this mapping will provide excellent information for locating future well sites.

Groundwater Storage

The quantity of groundwater storage will be monitored using periodic groundwater level data. The storage is calculated with groundwater level data and specific yield values that were provided in a USBR report prepared in the 1940's (see Section 3.3). During future geologic investigations, the specific yield values will be reviewed and verified, when possible.

Sharing of Groundwater Level Data

The OCID currently participates in the Semi-annual Groundwater Measurement Program administered by the USBR. This program requires OCID to take water level measurements from specified wells two times a year. The District will continue to share groundwater level data with the USBR and will provide the data to Fresno County when they develop a planned county-wide groundwater database. The neighboring Alta Irrigation District also has plans to survey their wells and create a groundwater database. Therefore, the Plan Group will seek a data sharing agreement with Alta Irrigation District to share groundwater level data near the OCID and Alta ID border.

6.2 - Groundwater Quality Monitoring

The Plan Area has not historically had groundwater quality problems and consequently the Plan Group has only performed water quality testing on a sporadic and limited basis. Nevertheless, the Plan Group has a tentative goal to develop a program to monitor groundwater quality. The program would primarily comprise the collection and review of groundwater quality tests performed by others, such as the City of Orange Cove, Department of Water Resources, and United States Geologic Survey, and possibly some limited new testing if it is deemed necessary and approved by the Board of Directors. This program would be designed to monitor the Plan Area in enough detail that any new water quality problems are detected in time to remedy them. The program would also include a database to store, organize and evaluate the water quality data. **Exhibit 6-1** shows locations of wells that the Districts could possibly use in future monitoring efforts, subject to landowners granting permission.

Objectives of Groundwater Quality Monitoring

A groundwater quality-monitoring program will have one or more of the following objectives:

1) Spatially characterize water quality according to soils, geology, surface water quality, and land use;

2) Establish a baseline for future monitoring;
3) Compare constituent levels at a specific well over time (i.e. years and decades);
4) Determine the extent of groundwater quality problems in specific areas;
5) Identify groundwater quality protection and enhancement needs;
6) Determine water treatment needs;
7) Identify impacts of recharge and banking projects on water quality;
8) Identify suitable crop types that are compatible with the water characteristics; and
9) Monitor the migration of contaminant plumes.

Private Well Testing

The Plan Group does not currently operate their own production wells. However, there are many private wells in the Plan Area. Unfortunately, these types of wells are usually monitored the least. Most of the testing performed on these wells is completed at the owner's expense, and unless the County Health Department lab performs the lab analysis, no record may be kept on the results of the testing. Consequently, the Plan Group will encourage landowners to perform more frequent testing, especially to test new wells, and voluntarily submit the data to their respective District for inclusion in the Districts' records. To help achieve this goal, the landowners will be educated on the importance of collecting and compiling water quality data to avert future problems.

City of Orange Cove Water Quality Monitoring

The City of Orange Cove presently monitors groundwater quality in the vicinity of their wastewater treatment facility. OCID analyzed the data in 2004 and determined that the groundwater in the vicinity of the wastewater treatment plant was not suitable for human consumption without treatment, but was still acceptable for agricultural use. The City of Orange Cove has several monitor wells and plans to expand their monitoring program with the construction of more monitor wells. OCID will continue to collect and review the data from the City's monitoring program to help foresee any potential problems for agricultural water users. The adequacy of the City's monitoring program will also be periodically reviewed.

Pest Management Zones

The Counties of Fresno and Tulare have implemented Pest Management Zones (PMZ) to protect against harmful pesticides entering the groundwater. This program is primarily designed to protect the quality of the groundwater used for human consumption. Degradation of groundwater utilized for crop use is not anticipated, but will be monitored for possible contamination from pesticides.

6.3 - Monitoring Protocols

Monitoring protocols are necessary to ensure consistency in monitoring efforts and are required for monitoring evaluations to be valid. Consistency should be reflected in factors such as location of sample points, sampling procedures, testing procedures, and possibly even time of year when the samples were taken. Without such common

ground, comparisons between and among reports must be carefully considered. Consequently, more uniform data gathering procedures are proposed in order to increase the reliability of analyses. Specific protocols for water level and water quality monitoring are discussed below.

Water-Level Monitoring Protocols

General protocols have been used for the groundwater level-measuring program. These protocols include:

1. Landowners will be contacted for permission to access their property prior to any fieldwork;
2. Perform all water level measurements in as short a period as possible;
3. Perform year to year measurements at the same time of the year;
4. Document the measurement reference point for each well as well as the measuring device and calibration date for the measuring device;
5. Document the date and time of each measurement;
6. Test each well twice, or more if needed, until consistent results are obtained; and
7. If there is reason to suspect groundwater contamination, water level measuring equipment will be decontaminated using standardized decontamination procedures, and in general, measurements will proceed from the least to the most contaminated wells.

These protocols, and any new protocols that are adopted, will be documented in future Annual Groundwater Reports.

Water-Quality Monitoring Protocols

The following water-quality monitoring protocols will be followed for existing and future monitoring efforts:

1) Landowners will be contacted for permission to access their property prior to any fieldwork.
2) Adequate pumping time prior to sample collection with documentation of stabilized parameters;
3) Proper sample containers, preservatives, and holding times;
4) Secure chain-of-custody procedures;
5) Ideally, use of the same laboratory for all testing, except for split samples sent to separate laboratories for comparison;
6) Testing will only be performed at accredited, state-certified laboratories that use proper quality control and quality assurance procedures;
7) All samples will be given a quality assurance code, which represents the relative confidence in the water sample. The following codes will be used:
   0: No information available to rank the quality assurance;

1: Questionable measurement; some quality assurance procedures not followed
2: Reliable measurement with all quality assurance procedures followed

8) Some testing will include spiked, duplicate and field-blank samples for comparison to genuine samples;
9) Proper handling procedures (e.g. placing the containers in an ice chest immediately after collection);
10) Documentation of all protocols and procedures that are used;
11) Uniform time of year for sampling (during periods of both minimal pumping in the winter and heavy pumping in July and August);
12) Document the name, contact information, and qualifications of the individuals taking measurements; and

6.4 - Land Surface Subsidence

No information is available on historic land subsidence in the area. The area may have experienced land subsidence in the early 1900's when it was prevalent in the San Joaquin valley. However, no significant land subsidence is known to have occurred in the last 50 years as a result of land development, water resources development, groundwater pumping, or oil drilling. Lands within the Plan Area will be observed for land subsidence, and, if land subsidence becomes a problem, this Plan will be amended to include preventative and mitigative land subsidence measures.

6.5 - Surface Water

Surface water flows may impact groundwater levels and groundwater quality if the two water sources are hydrologically connected. Alternatively, groundwater pumping may also affect nearby surface water if the surface supplies are hydrologically connected to the groundwater.

Within the District, surface flows only exist in a few ephemeral streams including Sand Creek, Wooten Creek, Wahtoke Creek and some smaller intermittent streams. The District does not divert water from these streams for irrigation or groundwater recharge, however considerable quantities of the streamflow are believed to infiltrate in the streambed and replenish the groundwater supply. No information is available on the quality of the stream water, but it is not believed to have any water quality problems. Flows and water quality are not currently measured in any of the streams.

When importing water for irrigation, the Plan Group considers not just the cost but also the quality of the water to be used for irrigation. Most of the surface water supply is delivered through the Friant-Kern Canal. The quality of this water is very good, ranging in total dissolved solids from about 30 to 50 mg/L. The Plan Group will likewise be cognizant of water quality issues of local streams and address water quality issues if they arise.

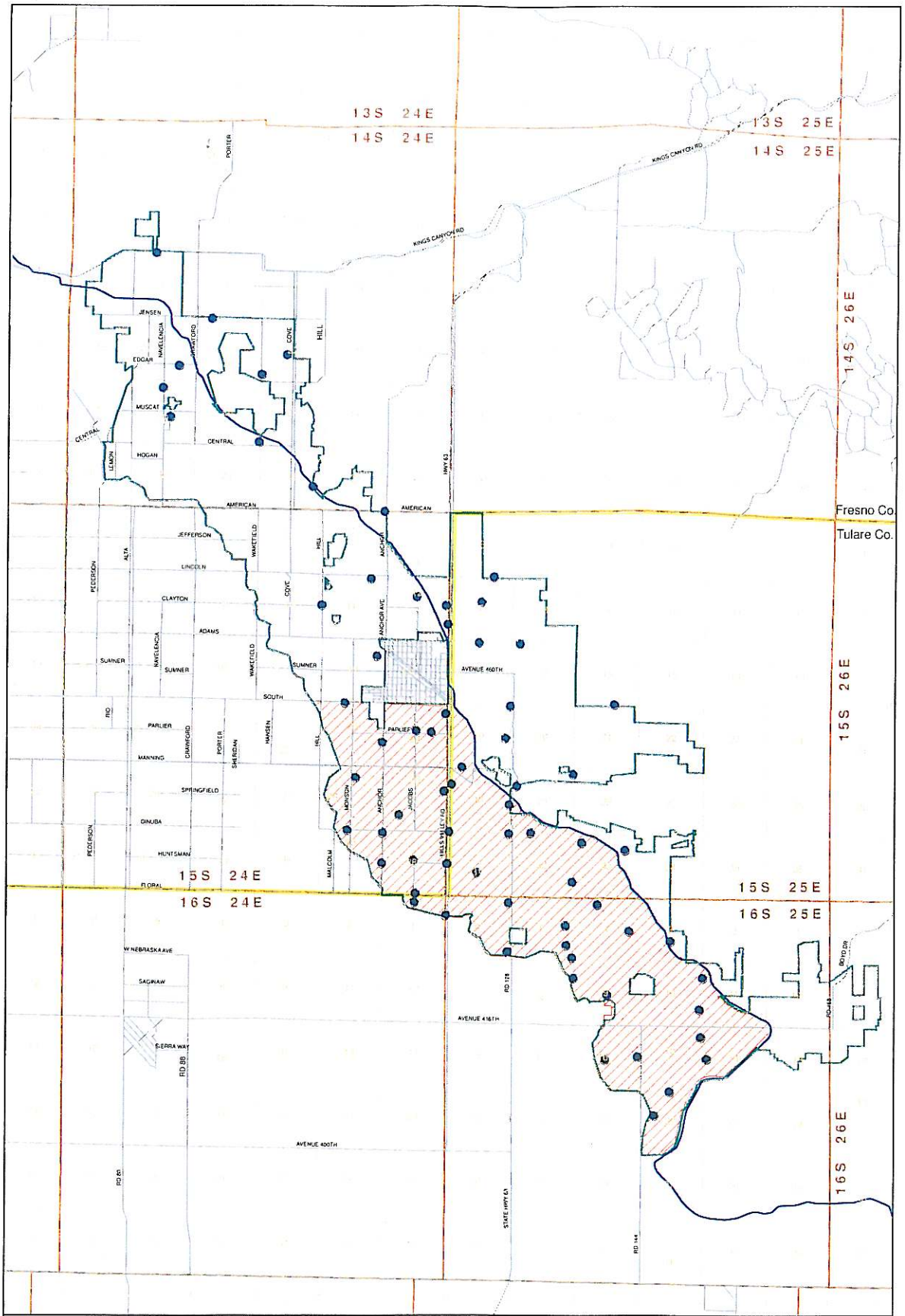

Exhibit 6-1

Orange Cove Irrigation District
Monitor Well Location Map

Orange Cove Irrigation District
Well Attribute Report

Exhibit 6-2

Well ID	*Well Type*	*Status*	*Foundation*	*Power Source*	*HP*	*Discharge Size(in)*	*Discharge Direction*	*PGE Tag #*	*Well Casing Diameter(in)*	*Ground Surface Elev(ft) NAVD88*	*Ref Point Elev(ft) NAVD88*	*New Well To Monitor**
14S23E13C001MX												
14S24E17C001MX	MONITOR	ACTIVE	NONE	NONE	0	0	NONE	0	9	462.85	464.95	
14S24E20Q001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	10	6	S	630R97	0	428.78	430.58	YES
14S24E21D001MX	MONITOR	INACTIVE	NONE	NONE	0	0	NONE	0	12	450.15	450.15	
14S24E21H001MX										464.00	464.50	
14S24E22L001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	N	449816	0	486.82	486.92	
14S24E22N001MX	MONITOR	ACTIVE	POOR CONCRETE	ELECTRIC	5	3	SW	R43268	0	487.78	488.28	
14S24E26R001MX												
14S24E26R002MX												
14S24E28R001MX	MONITOR	ACTIVE	NONE	NONE	0	0	NONE	0	6	436.21	437.21	
14S24E29C001MX	SUBMERSE AG	ACTIVE	POOR CONCRETE	ELECTRIC	0	6	N	R99335	0	432.04	432.64	
14S24E29K001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	7	4	E	297036	0	430.38	430.68	
14S24E31G001MX												
14S24E34J001MX	MONITOR	ACTIVE	NONE	NONE	0	0	NONE	0	6	449.05	450.35	
15S24E02A001MX	AG	INACTIVE	NONE	NONE	5	4	NW	0	0	449.12	449.72	
15S24E10H001MX	SUBMERSE DOM	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	N	0	0	415.61	415.76	
15S24E10L001MX												
15S24E11A001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	W	95T541	0	429.91	430.51	
15S24E11G001MX												
15S24E12F001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	N	1847R	0	435.56	436.46	

**Well added to monitoriung network in 2005*

Well ID	Well Type	Status	Foundation	Power Source	HP	Discharge Size(in)	Discharge Direction	PGE Tag #	Well Casing Diameter(in)	Ground Surface Elev(ft) NAVD88	Ref Point Elev(ft) NAVD88	New Well To Monitor*
15S24E12H001MX	SUBMERSE DOM	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	S	X90850	0	444.67	445.42	
15S24E12J001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	SE	454H31	0	441.90	442.65	
15S24E14H001MX	AG	ACTIVE	GOOD CONCRETE	NONE	0	0	NONE	685T38	0	418.02	418.72	
15S24E15K001MX	AG	ABANDONED	NONE	NONE						397.00	397.50	
15S24E23C001MX	AG	INACTIVE	POOR CONCRETE	NONE	0	0	NONE	0	10	406.38	406.78	
15S24E23J001MX	SUBMERSE DOM	ACTIVE	POOR CONCRETE	ELECTRIC	0	2	N	0	0	411.31	411.81	
15S24E24A001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	S	R49757	0	433.72	434.32	YES
15S24E24G001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	4	S	88T186	0	424.29	424.94	YES
15S24E24G002MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	W	07R377	10	416.53	417.33	YES
15S24E24P001MX	AG	ABANDONED	NONE	NONE						416.10	416.10	
15S24E24Q001MX	AG	ABANDONED	NONE	NONE						418.00	420.00	
15S24E25H001MX	AG	ACTIVE	POOR CONCRETE	ELECTRIC	30	8	E	R06604	0	427.75	428.65	YES
15S24E25L001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	6	W	R08436	0	411.48	414.58	YES
15S24E26B001MX	AG	INACTIVE	POOR CONCRETE	NONE	0	0	NONE	0	10	404.90	404.90	
15S24E35C001MX	AG	INACTIVE	POOR CONCRETE	NONE	0	0	NONE	0	0	400.14	401.14	YES
15S24E35J001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	15	6	N	R93505	0	398.52	399.12	YES
15S24E36D001MX	AG	INACTIVE	GOOD CONCRETE	NONE	0	0	NONE	287T21	0	405.78	405.78	YES
15S24E36F001MX	AG	INACTIVE	GOOD CONCRETE	NONE	0	0	NONE	0	8	406.56	407.46	
15S24E36Q001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	30	8	S	R68185	0	400.11	401.06	YES
15S25E06Q001MX	MONITOR	INACTIVE	NONE	NONE	0	0	NONE	0	8	466.12	468.82	
15S25E07G001MX	SUBMERSE DOM	ACTIVE	GOOD CONCRETE	ELECTRIC	0	1	S	98M932	0	459.43	459.53	
15S25E08C001MX												
15S25E08N001MX												

Well ID	Well Type	Status	Foundation	Power Source	HP	Discharge Size(in)	Discharge Direction	PGE Tag #	Well Casing Diameter(in)	Ground Surface Elev(ft) NAVD88	Ref Point Elev(ft) NAVD88	New Well To Monitor*
15S25E16Q001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	6	W	97323R	0	491.10	491.70	
15S25E17D001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	E	R43690	0	464.53	465.13	
15S25E17G001MX												
15S25E18C001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	5	3	E	R97996	0	447.48	447.68	
15S25E19A001MX	MONITOR	INACTIVE	GOOD CONCRETE	NONE	0	0	NONE	0	3	458.66	459.41	
15S25E19J001MX	SUBMERSE DOM	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	SW	13639H	0	453.61	453.86	
15S25E19N001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	E	91482R	0	435.62	436.32	YES
15S25E29A001MX	SUBMERSE AG	INACTIVE	GOOD CONCRETE	NONE	0	2	N	0	0	463.96	464.46	
15S25E29E001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	WIND	0	2	S	0	8	438.82	440.52	
15S25E29P001MX	DOMESTIC	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	S	R43142	0	424.84	425.79	YES
15S25E30D001MX	SUBMERSE DOM	INACTIVE	GOOD CONCRETE	ELECTRIC	0	2	E	0	0	430.71	432.11	YES
15S25E30J001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	E	61T869	0	432.78	432.98	YES
15S25E30N001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	N	654R84	0	415.79	416.19	YES
15S25E31A001MX	MONITOR	INACTIVE	GOOD CONCRETE	NONE	0	0	NONE	0	3	426.82	428.22	
15S25E31L001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	4	S	4077R6	0	411.33	412.43	YES
15S25E31M001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	S	639R23	0	409.85	410.35	YES
15S25E32F001MX	AG	ABANDONED	NONE	NONE						415.00	415.50	
15S25E32R001MX	SUBMERSE AG	ACTIVE	POOR CONCRETE	ELECTRIC	0	3	N	8834R3	0	409.10	409.60	
15S25E33A001MX	AG	INACTIVE	POOR CONCRETE	NONE	0	4	S	0	12	442.19	442.99	YES
15S25E33D001MX	AG	INACTIVE	POOR CONCRETE	NONE	0	0	NONE	0	0	426.61	427.31	
16S24E01B001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	20	8	W	060R96	0	397.80	398.60	YES
16S24E07A001MX												
16S24E26M001MX												

**Well added to monitoriung network in 2005*

Well ID	Well Type	Status	Foundation	Power Source	HP	Discharge Size(in)	Discharge Direction	PGE Tag #	Well Casing Diameter(in)	Ground Surface Elev(ft) NAVD88	Ref Point Elev(ft) NAVD88	New Well To Monitor*
16S25E03K001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	W	50692R	0	436.80	437.80	
16S25E04C001MX	SUBMERSE DOM	ACTIVE	GOOD CONCRETE	ELECTRIC	0	2	N	4191T8	0	418.50	419.00	
16S25E04J001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	E	54402R	0	415.68	416.38	YES
16S25E05H001MX	AG	INACTIVE	GOOD CONCRETE	NONE	0	0	NONE	0	10	402.09	403.89	YES
16S25E05R001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	6	S	2885R9	0	395.51	396.31	YES
16S25E05R002MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	4	E	9810R9	0	395.04	395.84	YES
16S25E06A001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	4	E	54557R	0	406.45	407.45	YES
16S25E06E001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	5	N	R44546	0	394.92	396.27	YES
16S25E06R001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	E	9M6853	0	392.77	393.37	YES
16S25E09E001MX	SUBMERSE AG	ACTIVE	POOR CONCRETE	ELECTRIC	0	5	S	5624R7	0	392.23	393.18	YES
16S25E09K001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	3	E	46R414	0	399.26	400.76	YES
16S25E10J001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	6	N	92853R	0	422.62	423.22	
16S25E11E001MX	SUBMERSE DOM	ACTIVE	GOOD CONCRETE	ELECTRIC	0	1	W	0	0	428.76	429.26	
16S25E14M001MX	SUBMERSE AG	ACTIVE	GOOD CONCRETE	ELECTRIC	0	4	N	295T15	0	410.48	411.43	YES
16S25E15A001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	10	6	N	R43379	0	411.18	411.68	YES
16S25E16H001MX	MONITOR	ACTIVE	NONE	NONE	0	0	NONE	0	3	401.30	403.20	
16S25E16L001MX	AG	ACTIVE	GOOD CONCRETE	ELECTRIC	15	6	SE	88480R	0	392.75	393.10	YES
16S25E22C001MX	SUBMERSE AG	ACTIVE	NONE	ELECTRIC	0	4	E	689T33	0	394.02	395.12	
16S25E22E001MX	SUBMERSE AG	ACTIVE	NONE	ELECTRIC	0	4	S	49559T	8	389.61	391.51	

7 - GROUNDWATER RESOURCES PROTECTION

7.1 - Well Abandonment

Proper destruction of abandoned wells is necessary to protect groundwater resources and public safety. Abandoned or improperly destroyed wells can result in contamination from surface sources, or undesired mixing of water of different chemical qualities from different stratas.

The administration of a well construction, abandonment and destruction program has been delegated to the Counties by the State legislature. Accordingly, Fresno County has adopted a permitting program consistent with Department of Water Resources Bulletin 74-81 and administers a permit program to assure proper construction, abandonment, and destruction of groundwater wells within Fresno County.

The Plan Group will properly abandon their own wells when they are no longer useful. In addition, the Plan Group will encourage landowners and developers to consider converting unusable wells to monitor wells, rather than abandon them, so that they can become a part of the Plan Group's groundwater monitoring program.

7.2 - Wellhead Protection

Need for Wellhead Protection

Contaminants from the surface can enter an improperly designed or constructed well along the outside edge of the well casing or directly through openings in the well head. A well is also the direct supply source to the customer, and such contaminants entering the well could then be pumped out and discharged directly into the distribution system. Therefore, essential to any wellhead protection program are proper well design, construction, and site grading to prevent intrusion of contaminants into the well from surface sources.

Furthermore, since wells can be a direct conduit to the aquifer, they must be properly destroyed and abandoned or they will provide an unimpaired route for pollutants to enter the groundwater, particularly if pumping equipment is removed from the well and the casing is left uncapped. Well Abandonment is discussed in Section 7.1.

Wellhead Protection Policy

Wells constructed by the Plan Group will be designed and constructed in accordance with DWR Bulletin 74-81. In addition, the Plan Group will encourage landowners to follow the same standard for privately owned wells. DWR Bulletin 74-81 provides specifications for the following:

- Methods for sealing the well from intrusion of surface contaminants;

- Covering or protecting the boring at the end of each day from potential pollution sources or vandalism;
- Site grading to assure drainage is away from the well head;
- Set-back requirements from known pollution sources; and
- Some flexibility will be afforded to new well construction technologies that are protective of the beneficial uses of groundwater.

Wellhead Protection Area

As defined in the Federal Safe Drinking Water Act Amendments of 1986, a wellhead protection area is "the surface and subsurface area surrounding a water well or wellfield supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield." The three Districts have randomly spaced wells throughout the Plan Area. Therefore, the entire Plan Area is treated as a wellhead protection area.

7.3 - Saline Water Intrusion

Saline water intrusion is not currently an identified problem in the Plan Area. However, the Plan Group will monitor water quality in a manner that provides management information about salinity in the area. Should saline intrusion become a problem in the future, a plan amendment will be prepared. In addition, the Plan Group strives to prevent the importation of saline surface waters that could ultimately degrade the groundwater. When alternative water sources are available for importation, the Plan Group considers not only the cost but also the quality, including salinity, of the water. The Plan Group will evaluate all possible alternatives, and, when practical and feasible, select water sources with acceptable levels of salinity.

7.4 - Migration of Contaminated Groundwater

Groundwater contamination can be human induced or be caused by naturally occurring processes and chemicals. Sources of groundwater contamination can include irrigation, dairies, pesticide applications, septic tanks, industrial sources, stormwater runoff, and disposal sites. Groundwater within the Plan Area is generally of excellent quality for agricultural use and migration of contaminated groundwater is not a present concern. Nevertheless, the Plan Group recognizes that migration of contaminated groundwater is always possible. The Plan Group will continue to review groundwater quality data from other sources and remain cognizant of the possibility of contaminated groundwater migration within the Plan Area.

8 - GROUNDWATER SUSTAINABILITY

Implicit in this plan is the contention that under existing conditions, the Plan Group's groundwater-related issues can be addressed through presently available means without intrusive regulation and/or restrictions on the use of groundwater extracted for private use. To that end, no groundwater management measure undertaken as a result of this plan shall require involuntary metering or otherwise interfere with the private extraction of groundwater for non export-related uses. Rather, the Plan Group will strive to prevent groundwater overdraft through groundwater management and voluntary programs.

8.1 - Overdraft Mitigation

Groundwater overdraft is not presently a problem in the Plan Area. Groundwater overdraft was a concern in the 1940's, which was one of the reasons the three Districts sought CVP contracts for surface waters. Since then groundwater levels have gradually risen and are now fairly stable.

Distribution System Seepage

Formerly, the distribution facilities in OCID contributed about 2,600 acre-feet per year to groundwater replenishment in the form of leakage or seepage losses. However, the OCID facilities were rehabilitated in the 1990's with 110 miles of new pipelines, and, as a result, losses from the system were reduced from about 2,600 acre-feet/year to essentially zero. This has caused a reduction in groundwater replenishment. The impact of the reduced seepage cannot be accurately evaluated since only a few years of data is available, but the situation will continue to be monitored. OCID will consider videotaping their pipelines when there is reason to suspect pipeline breakages or serious degradation, subject to available District funds.

Groundwater Level Monitoring

OCID plans to expand their groundwater-level monitoring network, which will provide early warning of impending groundwater overdraft (See Section 6.1). In addition, OCID is evaluating a drought preparedness program that would provide incentives for growers to pump more groundwater in dry years to allow other growers (that do not have a sustainable groundwater supply) to use any available surface waters. The plan will include a hydrogeologic evaluation and intensive planning and monitoring to ensure that the extra pumping does not lead to long-term groundwater overdraft or damage to the aquifer.

Groundwater Safe Yield

Estimates prepared by the USBR staff, dated August 12, 1988, show safe yield in OCID to be 26,899 acre-feet per year. Other reports show the safe yield to be 27,800 acre-feet. At best, OCID's safe yield does not exceed 28,000 acre-feet.

OCID does not measure or keep records of groundwater pumping, but it can be measured by subtracting surface water deliveries and direct precipitation from estimated crop evapotranspiration. The safe yield in HVID and TVWD are not accurately known.

Limitations on Pumping

The California Water Code gives water and irrigation districts the power to limit or suspend groundwater extractions. However, such limits will only be implemented if the Plan Group determines through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proved insufficient or infeasible to lessen groundwater demand. In the unlikely event that it becomes necessary to reduce groundwater extractions, the Plan Group intends to accomplish such reductions under a voluntary program, which will include suitable incentives to compensate users for reducing their groundwater pumping. The Plan Group will not attempt to restrict or otherwise interfere with any landowner or water user exercising a valid right to pump and utilize groundwater.

Limitations on the Exportation of Water Supplies

The Plan Group has established a goal to prepare guidelines for restricting water exports from the Plan Area. The guidelines would require the Plan Group to approve any water transfer that permanently moves local water outside of the Plan Area. The goal would be to prevent a willing seller from adversely impacting others in the Plan Area.

As one of the procedures to optimize available surface water resources, the guidelines should address the coordination of supply quantities that are available for transfer. As transfers between the Plan Group have historically taken place, any similar future transfers are exempt from the provisions of the CVP Improvement Act. Consideration should be given in the guideline development process to first right of refusal procedures due to the advantages of full utilization of contract supplies, and the relationship of the groundwater reservoir available to growers located within the Plan Group.

The Plan Group's restrictions on groundwater exports will be similar to those enacted in the County of Fresno Ordinance No. 00-013 (see **Appendix B**). This ordinance regulates groundwater extractions and requires permits for transferring groundwater outside of the County. The Plan Group generally does not support groundwater pumping for export out of the Plan Area unless it involves a transfer or exchange of water that will not reduce the total water supply available to the Plan Area. In addition, the Plan Group usually opposes surface water transfers that are accompanied with increased groundwater pumping used to replace the transferred surface water. However, such transfers will be reviewed on a case-by-case basis and will be permitted if they are approved by the Board of Directors.

Pumping Well Interference from Adjacent Properties

A significant cause of overdraft in many Districts in the San Joaquin Valley is pumping by adjacent landowners. This occurs when water users in a district pump groundwater and the extraction well's capture zone entrains groundwater from a neighboring district. This phenomenon, called pumping well interference, is not currently a problem between the Plan Group members and the neighboring Alta Irrigation District. Nevertheless, it is recognized that pumping well interference could become prevalent if groundwater conditions and pumping patterns change appreciably. Therefore, pumping well interference will be evaluated annually in the Annual Groundwater Report. If pumping well interference is impacting water levels and well yields in the Plan Area, then capture zone analysis will be used to establish the extent of the problem, and the parties involved will meet to discuss alternatives for resolving the problem.

8.2 - Groundwater Replenishment

The Plan Group does not practice intentional groundwater replenishment because of the fairly high groundwater levels and limited storage capacity in the local aquifer, fairly stable groundwater levels, and the existence of some natural and indirect forms of groundwater replenishment. In addition, the Plan Group does not anticipate a need for artificial groundwater replenishment in the near future. The natural and indirect forms of groundwater replenishment in the Plan Area are discussed below:

Deep percolation from irrigation

Deep percolation occurs when some of the water applied for irrigation percolates beyond the crop root zone and accumulates in the aquifer. The extent of deep percolation varies with the irrigation method, irrigation efficiency, and antecedent moisture condition.

Streambed Infiltration

Groundwater replenishment comes from Sand Creek, Wahtoke Creek, Wooten Creek, and, to a lesser extent, from smaller intermittent streams in the area. This source of groundwater replenishment is probably significant but has not been quantified.

Canal Seepage

Canal seepage occurs from the Friant-Kern Canal on the east side of the District and the Alta Canal on the west side of the District. A major section of the Friant-Kern Canal is unlined through OCID. Seepage from the Canal is estimated to be 5,000 acre-feet/year. Seepage from the unlined Alta Canal may impact water levels in the OCID. The groundwater generally flows from east to west, so, the Alta Canal seepage, which is on the western border of the District, would only influence water levels if the seepage caused groundwater mounding.

Deep percolation from precipitation

While some deep percolation may result from exceptionally long and heavy storms, such storms are so infrequent that the average annual replenishment from precipitation is considered too small to directly affect the estimates of natural recharge to the groundwater.

Seepage from Distribution Facilities

Formerly, the distribution facilities in the OCID contributed about 2,600 acre-feet per year to groundwater replenishment. However, the District facilities were rehabilitated in the 1990's with 110 miles of new pipelines, and, as a result, losses from the system were reduced from about 2,600 acre-feet/year to essentially zero. This has caused a reduction in groundwater replenishment.

In-Lieu deliveries

The Plan Group views in-lieu deliveries as the most practical and effective means of groundwater replenishment. In-lieu deliveries, also called indirect deliveries, involve the delivery of surface water to landowners and water users who would otherwise have pumped groundwater, thus leaving water in the aquifer for future use.

The Plan Area has limited groundwater storage due to the tight soils, shallow alluvial cover, and the presence of some granite layers that are intact and have little to no permeability. Within the Plan Area groundwater is stored primarily in fractured and decomposed sections of the granite pediment. Consequently, there is a delicate balance between groundwater overdraft and high water levels. Therefore, care must be exercised by the land operators to maintain a balance between recharge and withdrawal from the groundwater reservoir to prevent insufficient water supply on one hand and waterlogging on the other hand. On most lands in the area the growers are solving these problems through various management practices. Groundwater levels in the Plan Area are fairly stable, but they can change considerably in different hydrologic year types.

Intentional Recharge

Although intentional recharge is not considered necessary at the time, the Plan Group has identified the following areas that may have potential, if they are needed in the future:

1) The areas east of Smith Mountain and around the community of Navalencia may have potential for direct and indirect (in-lieu) groundwater recharge; and
2) Increased groundwater recharge may be possible through existing surface features such as Sand Creek.

8.3 - Conjunctive Use of Water Resources

Conjunctive use of water is defined as the coordinated use of both underground and surface water sources so that the combination will result in optimum benefits. The landowners will continue to have limited surface water supplies and therefore also need to rely on groundwater to meet their water demands. The Plan Group does not operate any groundwater wells or perform direct groundwater recharge. Landowners in the District practice their own conjunctive use because of necessity. Accordingly, when determined practical and appropriate, the policies below will be followed to encourage and facilitate conjunctive use of the Plan Area's water resources:

1. Encourage and assist landowners and water users in the transfer of water into the Plan Area, which will have the effect of causing additional "in lieu" recharge.
2. Pursue the acquisition of new water supplies should they become available at affordable costs.
3. Generally prohibit transfers of surface water out of the District that are replaced with groundwater pumping, unless the transfer is approved by the Board of Directors.
4. Encourage those urban water agencies that have not already done so to contract for all surface water to which they are entitled and reduce groundwater pumping.
5. Work with all appropriate public agencies, private organizations, and individuals within and outside of the Plan Area to protect existing surface water rights and supplies.
6. Seek opportunities to increase conservation storage through groundwater banking programs or off-stream storage to help balance full contract supply years with drought years.

In addition, OCID is currently studying the possibility of establishing in-lieu use agreements with growers. In-lieu use agreements would provide incentives for growers with reliable wells to use more surface water in wet years and shift to groundwater pumping in dry years. The release of those grower's surface water supplies in dry years would increase dry year surface water supplies for other growers in the Plan Area.

8.4 - Water Recycling

The Orange Cove Irrigation District formerly used about 260 acre-feet of treated water from the City of Orange Cove's Wastewater Treatment Plant. The program was suspended several years ago when the City reverted from tertiary treatment back to secondary treatment methods and OCID declined the water due to its inadequate quality. OCID will attempt to resolve these water quality issues with the City of Orange Cove and renew deliveries of treated water.

9 - GROUNDWATER OPERATIONS

9.1 - Well Construction Policies

Proper well construction is important to ensure reliability, longevity, and protection of groundwater resources from contamination. Fresno County has adopted a well-construction permitting-program consistent with Department of Water Resources Bulletin 74-81 to assure proper construction of groundwater wells within the County. No specific requirements for well construction in Tulare County are known, but the Fresno County standards will also be used for wells constructed in Tulare County that are within the Plan Area.

Proper wellhead protection is essential to ensure that contaminants do not inadvertently enter a well. Well construction policies that are intended to ensure proper wellhead protection are discussed in Section 7.2 – Wellhead Protection.

The Plan Group does not presently operate production wells but may construct monitor wells with District funds. Important items to consider for a properly drilled monitor well include 1) method of drilling, 2) casing type and diameter, 3) perforations or well screen, 4) gravel pack, 5) annular seal, and 6) well development. As a general rule, monitor wells should be placed immediately upgradient and downgradient of a waste discharge site. An aquifer test is recommended after the monitor well is developed. Care should be taken to drill monitor wells deep enough so they won't go dry during summer months or drought periods; however, they should not be drilled so deep as to make monitoring of the shallowest strata difficult. Historical water level fluctuations should be examined to determine the magnitude of fluctuations to be expected in the future.

In addition, the following quality assurance procedures will be followed when constructing District owned wells in the Plan Area. Landowners are also encouraged to follow these procedures when constructing private wells:

1. Well construction will be performed under contract by a licensed and experienced well driller, in accordance with specifications prepared by a licensed engineer or geologist, and reviewed by legal counsel.
2. A licensed engineer or geologist will oversee construction of the wells.
3. A licensed land surveyor in the State of California will oversee survey of any newly constructed wells.
4. District legal counsel will provide needed agreement documentation for right-of-way, construction and entry permission.

9.2 - Operation of Facilities

The Districts do not own or operate any wells. However, they strive to provide the best facilities for delivery of surface water supplies, since they are used

conjunctively with groundwater. In the 1990's a significant objective was achieved with the total rehabilitation of OCID's water distribution system, which included the laying of approximately 110 miles of new pipelines, the installation of new high-efficient pumping plants, and the conversion of orifice plate deliveries to metered deliveries. The District achieved this objective in July 1997, albeit with significant cost. The rehabilitation project cut the District's average annual water loss (from seepage and leakage) from 10-14 percent to effectively zero.

10 - GROUNDWATER PLANNING AND MANAGEMENT

10.1 - Land Use Planning

The Plan Group does not have direct land-use planning authority. However, they do have the opportunity to comment on the environmental documents for land- use related activities, and protest when appropriate. Therefore, the Plan Group intends to participate with the City of Orange Cove, Fresno County, Tulare County, and any other appropriate agencies in reviewing and commenting on land-use plans that have the potential to affect groundwater supplies underlying the Plan Area. The Plan Group will pursue actions to minimize any adverse impact on groundwater supplies, groundwater quality, groundwater levels, groundwater recharge areas and surface water supplies as a result of any proposed land use changes.

10.2 - Groundwater Reports

The Plan Group has a goal to prepare groundwater reports every year to document groundwater levels, available groundwater storage, and historical trends. This information will be used to forecast future problems, plan future groundwater projects, and develop new groundwater policies. See Appendix C for a report outline. The groundwater reports will include the following:

- Groundwater level data;
- Groundwater contour maps;
- Groundwater storage calculations;
- Evaluation of 1-year and 5-year historical trends in groundwater levels, contours, and storage, and perceived reasons for any changes;
- Summary of important groundwater management actions during the period covered by the report;
- Discussion on whether management actions are meeting the management objectives;
- Summary of proposed management actions for the future;
- Summary of any plan component changes during the period covered by the report (i.e. new well construction, changes in wells being monitored, recharge site developments, etc.); and
- Summary of actions taken to coordinate with other water management, land-use and government agencies.

10.3 - Plan Implementation

The current implementation schedule for the GMP is as follows:

1. Implement a new expanded groundwater-level monitoring program to observe short- and long-term changes in groundwater levels and groundwater storage. (2006)

2. Develop an incentive based in-lieu use program that would encourage groundwater pumping in dry years to provide more surface water to growers with no groundwater supply. (2006-2007)
3. Prepare annual groundwater reports. (beginning in 2006)
4. Hold annual Groundwater Advisory Committee meetings to monitor progress and make recommendations. (beginning in 2006)
5. Renew discussions with the City of Orange Cove regarding the use of treated water for irrigation. (2006-2007)
6. Seek opportunities to form or join regional water management groups to improve regional cooperation and the sharing of ideas. (2006-2007)
7. Incorporate water level data from areas just outside of OCID, such as the Alta Irrigation District, into the OCID groundwater database. Ensure that consistent monitoring protocols are being used between the Plan Group and other agencies that are providing water level measurements for the database. (2007)

Implementation of the updated plan is expected to result in significant amounts of new knowledge and an achievable improvement in groundwater management in the basin.

10.4 - Plan Re-evaluation

Most of the strategies that make up this Plan are established policies, procedures, and ordinances. The goal of this document is to codify them for purposes of identifying an overall management program.

Implementation of the various components of the Plan will continue on an on-going basis. As new policies, practices, or ordinances become necessary or desirable to enhance the management of the Plan Area's groundwater supply, this Plan will be amended as necessary.

A Groundwater Advisory Committee (Committee) will be responsible for monitoring the progress of the GMP objectives. Refer to Section 5.3 for more information on the membership, policies, and procedures of the Committee. The Committee will attempt to meet at least once a year to review and evaluate groundwater conditions as well as evaluate the effectiveness of the GMP.

The Plan Group recognizes that implementing the GMP is in the best interest of their growers. Furthermore, the Plan Group realizes that funding from state and federal agencies for groundwater projects will be largely based on their progress in implementing the GMP. Therefore, the Plan Group will also be continuously monitoring progress on furthering the goals of the GMP.

10.5 - Dispute Resolution

If groundwater disputes occur in the Plan Area then an attempt will be made to resolve the dispute through the following process:

1. Discuss the dispute with the staff member responsible for system operations if the problem is related to operation and maintenance.
2. If the dispute cannot be resolved with the operations staff, or it concerns an issue that goes beyond operation and maintenance, then contact the District Manager to discuss the issue.
3. If the issue cannot be resolved by the District Manager, the Manager will refer the dispute to the Board of Directors with a recommended resolution, unless the issue is outside the authority of the Board.
4. The District Manager may use legal counsel or technical staff to assist in addressing the issue at hand.

10.6 - Program Funding and Fees

Included in the authority granted to local agencies under AB 3030 were the powers to limit groundwater extractions and implement water replenishment fees based upon the amount of water extracted (extraction based fees must first be approved by majority vote of impacted landowners). Inherent in these powers is the authority to implement metering of private wells. These are considered measures of last resort and the Districts will make any and all efforts to ensure the private, non-metered use of groundwater by the local growers.

However, the Plan Group has the authority to finance capital improvement projects and collect repayment charges from the benefited parties. This process would require a favorable vote from the constituency approving the repayment fees prior to implementation, and is considered a realistic alternative for large capital projects to improve groundwater facilities.

In addition, OCID has successfully acquired funding from the Department of Water Resources for projects that are consistent with the goals of Groundwater Management Plan. The Plan Group will continue to pursue available grants and low-interest loans from the Department of Water Resources as well as other state and federal agencies.

11 - REFERENCES

1. California Department of Water Resources, *Bulletin No. 74-81 – Water Well Standards: State of California*, 1981.

2. California Regional Water Quality Control Board - Central Valley Region, *Order No. R5-2004-0008, Waste Discharge Requirements for City of Orange Cove Wastewater Treatment Facility, Fresno County*, 2004.

3. California State Senate, *Senate Bill No. 1938, Chapter 603, Groundwater Management: State Funding*, 2002.

4. County of Fresno, *Fresno County Groundwater Management Plan*, March 11, 1997.

5. Department of Water Resources, *California's Ground Water, Bulletin 118*, September 1975.

6. Department of Water Resources, *California's Ground Water, Bulletin 118 (Update 2003)*, 2003.

7. Department of Water Resources, *Ground Water Basins in California, Bulletin 118-80*, January 1980.

8. Friant Unit Contractors, *Water Needs Analysis*, March 7, 1988.

9. Orange Cove Irrigation District, Hills Valley Irrigation District and Tri-Valley Water District, *Orange Cove Groundwater Management Plan*, October 27, 1997.

10. Orange Cove Irrigation District, *Water Conservation Plan*, January 1998.

11. Provost and Pritchard Engineering Group, Inc., *AB303 Application for the Groundwater Monitoring and Drought Preparedness Program for Orange Cove Irrigation District*, January 2004.

12. Thomson West, *California Water Code, 2003 Desktop Edition, Chapter 3 – Groundwater Management Plans*, 2003.

13. United States Bureau of Reclamation, *Supplemental Irrigation Suitability Land Classification Report, Central Valley Project Friant Division, Hills Valley – Tri-Valley Area*, March 1982.

14. United States Department of the Interior Bureau of Reclamation Region II, *Geologic Study of the Orange Cove Irrigation District*, August 1947.

15. United States Department of the Interior Bureau of Reclamation Region II, *Water Supply Study of the Orange Cove Irrigation District, Fresno and Tulare Counties, California*, September 1947.

16. United States Department of the Interior Bureau of Reclamation Region II, *Land Use Study of the Orange Cove Irrigation District, Fresno and Tulare Counties, California*, August 1947.

17. United States Geological Survey, *Water Quality Data, San Joaquin Valley, California, April 1987 to September 1988, Open File Report 91-74*, 1991.

APPENDIX A

PUBLIC PARTICIPATION IN PLAN ADOPTION

BEFORE THE BOARD OF DIRECTORS OF THE ORANGE COVE IRRIGATION DISTRICT

COUNTIES OF FRESNO AND TULARE, CALIFORNIA

For Intention to Adopt the District's Updated Groundwater Management Plan

Resolution 2006 - 04

WHEREAS, the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District (the Districts) adopted a Groundwater Management Plan on October 27, 1997 that is in accordance with Assembly Bill 3030; and

WHEREAS, the California Water Code permits the adoption and implementation of Groundwater Management Plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, updating the Districts' Groundwater Management Plan is in furtherance of and consistent with the Districts' goals and objectives; and

WHEREAS, the State of California recently adopted Senate Bill No. 1938, which specifies new requirements for Groundwater Management Plans; and

WHEREAS, The Districts' existing plan was updated to meet the requirements of Senate Bill No. 1938; and

WHEREAS, the Districts believe that adopting a new Groundwater Management Plan will be in the best interests of the Districts' landowners and water users and can help meet the projected long-term water needs of the Districts;

WHEREAS, the Hills Valley Irrigation District and Tri-Valley Water District have granted the Orange Cove Irrigation District lead agency status for the update to the Groundwater Management Plan adopted by Orange Cove Irrigation District, Hills Valley Irrigation District and Tri-Valley Water District on October 27, 1997;

WHEREAS, a public hearing was held on June 14, 2006, to discuss the adoption and implementation of an updated Groundwater Management Plan;

WHEREAS, no written protests, as prescribed in California Water Code Section 10753.6, were filed, and as therein provided, this Board may now adopt the proposed Groundwater Management Plan.

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. The District approves and adopts the Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. That the officers of the District are authorized and directed to publish this resolution of intention to adopt the District's Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Orange Cove Irrigation District on June 14, 2006.

AYES:
NOES:
ABSENT:
ABSTAIN:

Harvey A. Bailey, President, Orange Cove Irrigation District

CERTIFICATE OF SECRETARY

I hereby certify that I am the Secretary of the Orange Cove Irrigation District and that the foregoing Resolution was duly adopted by the Board of Directors of said District at the Regular Meeting duly held in Orange Cove, California on June 14, 2006, at which meeting a quorum of said Board of Directors was at all times present and acting.

IN WITNESS WHEREOF, I have hereunto set my hand and seal of said District this 14th day of June, 2006.

John P. Roldan, Secretary
Orange Cove Irrigation District

Minutes of the Regular Meeting of the Board of Directors of the Orange Cove Irrigation District held on Wednesday, December 8, 2004. The Meeting was called to order at 8:00 A.M., with the following Directors and Officers present:

Directors:	Harvey A. Bailey, President David A. Brown Arlen D. Miller Russell Katayama
Officers:	James C. Chandler Engineer-Manager-Secretary Robert T. Ramirez, Controller / Treasurer
Absent:	Henry A. Collin, III, Vice President
Others:	Counsel Soares by Conference Phone

President Bailey called for election of officers. Director Katayama offered a motion to keep existing officers in place. The motion was seconded by Director Miller and unanimously approved by the Board.

The meeting was recessed at 8:05 AM to conduct the Board meeting for the Orange Cove Irrigation District Financial Corporation. The Financial Corporation BOD meeting adjourned at 8:15 AM and the Board reconvened for the regular OCID Board of Directors meeting.

President Bailey asked if there were any changes to the agenda. Hearing none, he ordered the agenda approved as prepared.

President Bailey then asked if there were any errors or omissions to the minutes for the Regular Board meeting held November 10, 2004. Hearing none, Chairman Bailey ordered the minutes approved as prepared.

Bills totaling $292,781.19 were then discussed. After discussion, Director Miller offered a motion to approve the bills. The motion was seconded by Director Katayama and unanimously approved by the Board.

The Monthly Report was then discussed. Controller Ramirez reported on the financial standing of the District and other related activities of the Accounting Department. Manager Chandler reported on various sessions held at the ACWA Conference. Various other water related issues were discussed.

A Closed Session was called at 8:40 AM to discuss pending litigation. Counsel Soares joined the meeting by conference phone. Chairman Bailey called the meeting out of Closed Session at 9:20 AM and reported that no action had been taken in Closed Session.

Under Friant Water Users Authority and Friant Water Authority, discussion focused on the litigation before Judge Karlton. Chairman Bailey reported on other issues involving the two authorities and the G-10 Group which was formed to mitigate potential adverse impacts to water users coming from Judge Karlton's ruling.

Under Electrical Power, power generation and revenue reports were given for FPA and FWR. It was also noted that FPA would hold a Board meeting December 14th. A tour would be held the afternoon of December 9th to review current maintenance work and future needs being for the plant. It was also noted that the FERC license amendment for Fishwater Hydro was ready for submittal to FERC.

The Board recessed from its regular meeting at 9:53 AM to conduct a joint hearing with the Hills Valley ID and Tri-Valley WD Boards of Directors for the planned update of the joint groundwater management plan. The hearing adjourned at 10:35 AM and the OCID Board returned to its regular meeting.

Under Groundwater Management Planning, a status report was given. The District had executed agreements with DWR for the grant and Pritchard and Provost Engineering Group to conduct the studies. P&P Engineering are moving quickly to get the studies underway.

Under Long Range Water Management Plan and consolidation of districts, the District is in the process of informational meeting which it wants to complete prior to negotiations with Hills Valley ID and Tri-Valley WD.

A discussion was then held to consider supporting the activities of the Pacific Legal Foundation and the California Farm Water Coalition. After discussion, the Board recognized the importance of both organization and offered to support one or both if staff could find items in the budget that could be cut to offset the cost.

With no further business to discuss, the Regular Board meeting was adjourned at 11:12 AM.

Harvey A. Bailey, President

James C. Chandler, Secretary

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Telephone: (559) 638-2244

(Space below for use of County Clerk only)

SUPERIOR COURT OF CALIFOR[illegible]F FRESNO

Public Hearings

CA[illegible]

[illegible]ARATION OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Fresno

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the REEDLEY EXPONENT, a newspaper of general circulation, printed and published in the City of Reedley, County of Fresno, and which newspaper has been adjudged a newspaper of general circulation by the superior court of the County of Fresno, State of California, under the date of July 1, 1952, Case Number 867614; that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

June 1, 8, 2006

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

on June 8, 2006

Charlene Vaughn

NOTICE OF HEARING ON ORANGE COVE IRRIGATION DISTRICT, HILLS VALLEY IRRIGATION DISTRICT, AND TRI-VALLEY WATER DISTRICT'S INTENTION TO ADOPT AN UPDATED GROUNDWATER MANAGEMENT PLAN

Notice IS HEREBY GIVEN that at 12 o'clock on the 14th day of June, 2006, before the Board of Directors of the Orange Cove Irrigation District, acting on behalf of itself and the Board of Directors of the Hills Valley Irrigation District and Tri-Valley Water District, at the offices of the Orange Cove Irrigation District at 1130 Park Blvd., Orange Cove, California, a public hearing will be held to discuss whether or not the Districts should adopt a resolution to adopt an updated Groundwater Management Plan that has been modified to be in compliance with California Senate Bill No. 1938.

Senate Bill No. 1938 specifies new requirements for the purpose of qualifying as a groundwater management plan for the purpose of being eligible to receive state funds for the construction of groundwater projects or groundwater quality projects. Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas.

Landowners within the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District and other interested parties are invited to attend the hearing. Copies of the updated Groundwater Management Plan, proposed resolution, and other relevant written materials will be available for review by the public at the hearing or may be obtained in advance at the Orange Cove Irrigation District Office, 1130 Park Ave., Orange Cove, California, 93646. Opportunity for public questions and input will be provided at the hearing.

June 1, 8, 2006

[illegible]

JUN 15 2006

ORANGE COVE IRRIGATION DIST.

BEFORE THE BOARD OF DIRECTORS
OF THE
ORANGE COVE IRRIGATION DISTRICT
COUNTIES OF FRESNO AND TULARE, CALIFORNIA

For Intention to Update the District's Groundwater Management Plan

Resolution 2005 - 10

WHEREAS, the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District adopted a Groundwater Management Plan on October 27, 1997, that is in accordance with Assembly Bill 3030; and

WHEREAS, the California Water Code permits the adoption and implementation of Groundwater Management Plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, updating the District's Groundwater Management Plan is in furtherance of and consistent with the District's goals and objectives; and

WHEREAS, the State of California recently adopted Senate Bill No. 1938, which specifies new requirements for Groundwater Management Plans; and

WHEREAS, the District's existing plan needs to be updated to meet the requirements of Senate Bill No. 1938 and the District believes that the Groundwater Management Plan should be updated to be in compliance with California Senate Bill No. 1938; and

WHEREAS, the District believes that updating and adopting a new Groundwater Management Plan will be in the best interest of the District's landowners and water users and can help meet the projected long-term water needs of the District; and

WHEREAS, the Hills Valley Irrigation District and Tri-Valley Water District have consented to the Orange Cove Irrigation District lead agency status for the update to the Groundwater Management Plan adopted by Orange Cove Irrigation District, Hills Valley Irrigation District and Tri-Valley Water District on October 27, 1997; and

WHEREAS, a public hearing was held on December 8, 2004, to discuss the adoption and implementation of an updated Groundwater Management Plan.

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct.

1. It is the intention of the District to update the Groundwater Management Plan in accordance with Senate Bill No. 1938, and Provost & Pritchard consultant is hereby authorized and directed to draft such a plan.

2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.

3. After such a plan has been prepared, the District will conduct a second public hearing in accordance with the California Water Code Section 10753.2 for the purpose of determining whether to adopt the plan.

4. That the officers of the District are authorized and directed to publish this resolution of intention to update the District's Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request.

5. That the Board hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the Orange Cove Irrigation District on November 9, 2005.

AYES: Directors Bailey, Collin, Brown, Miller and Katayama
NOES:
ABSENT:
ABSTAIN:

Harry A. Bailey, President, Orange Cove Irrigation District

CERTIFICATE OF SECRETARY

I hereby certify that I am the Secretary of the Orange Cove Irrigation District and that the foregoing Resolution was duly adopted by the Board of Directors of said District at the Regular Meeting duly held in Orange Cove, California on November 9, 2005, at which meeting a quorum of said Board of Directors was at all times present and acting.

IN WITNESS WHEREOF, I have hereunto set my hand and seal of said District this 9th day of November, 2005.

John F. Roldan, Secretary
Orange Cove Irrigation District

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JAN 13 2006

SUPERIOR COURT OF CALIFORNIA, COUNTY OF FRESNO

Public Notice

CASE NO. _____

DECLARATION OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Fresno

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the REEDLEY EXPONENT, a newspaper of general circulation, printed and published in the City of Reedley, County of Fresno, and which newspaper has been adjudged a newspaper of general circulation by the superior court of the County of Fresno, State of California, under the date of July 1, 1952, Case Number 867614; that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

December 29, 2005

January 5, 2006

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

on January 5, 2006

Charlene Vaughn

NOTICE OF HEARING ON ORANGE COVE IRRIGATION DISTRICT, HILLS VALLEY IRRIGATION DISTRICT, AND TRI-VALLEY WATER DISTRICT'S INTENTION TO UPDATE THEIR JOINT GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that at 10:00 a.m. on the 8th day of December, 2004, before the Board of Directors of the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Irrigation District (the Districts), at the offices of the Orange Cove Irrigation District at 1130 Park Blvd., Orange Cove, California, a public hearing will be held to discuss whether or not the Districts should adopt a resolution of intention to update the Districts' groundwater management plan to be in compliance with California Senate Bill No. 1938.

Senate Bill No. 1938 specifies new requirements for the purposes of qualifying as a groundwater management plan for the purposes of being eligible to receive state funds for the construction of groundwater projects or goundwater quality projects. Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas.

Landowners within the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District and other interested parties are invited to attend the hearing. Copies of the proposed resolution and other relevant written materials will be available for review by the public at the hearing or may be obtained in advance at the Orange Cove Irrigation District Office, 1130 Park Blvd., Orange Cove, California, 93646. Opportunity for public questions and input will be provided at the hearing.

In compliance with Water Code § 10753.4(b), landowners and other interested parties who wish to participate in updating the groundwater management plan, including becoming a member of a technical advisory committee, may do so by attending the hearing and indicting their interest or by submitting a written letter to James Chandler, District Manager, Orange Cove Irrigation District, 1130 Park Blvd., Orange Cove, California, 93646.

Nov. 24, Dec. 1, 2004

Minutes of the Hearing and joint meeting of the Boards of Directors of the Orange Cove Irrigation District, Hills Valley Irrigation District and Tri-Valley Water District held on Wednesday, December 8, 2004. The Hearing was publicly noticed to seek public input from persons interested in the groundwater planning efforts of the three districts. The Hearing was called to order at 10:00 A.M., with the following Directors and Officers present:

Orange Cove Irrigation District

Directors: Harvey A. Bailey, President
David A. Brown
Arlen D. Miller
Russell Katayama

Officers: James C. Chandler
Engineer-Manager-Secretary
Robert T. Ramirez, Controller / Treasurer

Absent: Henry A. Collin, III, Vice President

Hills valley Irrigation District

Directors: Don Schroeder, President
Alan Corrin
Loren Booth

Officers: Dennis Keller, Manager-Engineer-Secretary-Treasurer

Tri-Valley Water District

Directors: None present

Officers: Dennis Keller, Consulting Engineer

OCID Manager Chandler reported that OCID had received a grant from California Department of Water Resources to update the joint AB3030 Groundwater Management Plan to the current SB1938 standard. In addition, OCID would be developing a Drought Preparedness Plan that would be heavily reliant on an in lieu groundwater banking program. Additional monitoring wells would be added to the District's existing monitoring well program for collection of more data for better assessments of the programs effectiveness.

An advisory committee has been established to help with the plan development and development of an incentive based program for the in lieu banking program. The committee currently consists of six landowners in OCID that farm in areas with groundwater and Manager Chandler. Dennis Keller will represent Hills Valley ID and Tri-Valley WD on the committee. Other members may be added if needed. If the initial program development is successful, it will open opportunities for additional funding to implement the full program with the long-range goal of better serving the water user with a more reliable dry year water supply with less dependence on water purchases from the open market.

OCID requested confirmation that both Hills Valley ID and Tri-Valley WD wanted to continue as joint participants in the groundwater management planning effort. Hills Valley ID voted unanimously to continue its participation. Mr. Keller will ask the same of Tri-Valley WD at their next regular board of directors meeting.

No one from the general public appeared for the Hearing. With no further business to discuss, the Hearing was adjourned at 10:35 AM.

James C. Chandler, OCID Secretary

BEFORE THE BOARD OF DIRECTORS
OF THE
ORANGE COVE IRRIGATION DISTRICT

COUNTIES OF FRESNO AND TULARE, CALIFORNIA

For Intention to Update the District's Groundwater Management Plan

Resolution 2005 - 14

WHEREAS, the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District adopted a Groundwater Management Plan on October 27, 1997, that is in accordance with Assembly Bill 3030; and

WHEREAS, the California Water Code permits the adoption and implementation of Groundwater Management Plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, updating the District's Groundwater Management Plan is in furtherance of and consistent with the District's goals and objectives; and

WHEREAS, the State of California recently adopted Senate Bill No. 1938, which specifies new requirements for Groundwater Management Plans; and

WHEREAS, The District's existing plan needs to be updated to meet the requirements of Senate Bill No. 1938 and the District believes that the Groundwater Management Plan should be updated to be in compliance with California Senate Bill No. 1938; and

WHEREAS, the District believes that updating and adopting a new Groundwater Management Plan will be in the best interest of the District's landowners and water users and can help meet the projected long-term water needs of the District;

WHEREAS, the Hills Valley Irrigation District and Tri-Valley Water District have granted the Orange Cove Irrigation District lead agency status for the update to the Groundwater Management Plan adopted by Orange Cove Irrigation District, Hills Valley Irrigation District and Tri-Valley Water District on October 27, 1997; and

WHEREAS, a public hearing was held on December 8, 2004, to discuss the adoption and implementation of an updated Groundwater Management Plan;

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. It is the intention of the District to update the Groundwater Management Plan in accordance with Senate Bill No. 1938, and the District's consultant is hereby authorized and directed to draft such a plan;

2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;

3. After such a plan has been prepared, the District will conduct a second public hearing in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;

4. That the officers of the District are authorized and directed to publish this resolution of intention to update the District's Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;

5. That the Board hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the Orange Cove Irrigation District on November 9, 2005.

AYES: Directors Bailey, Collin, Brown, Miller and Katayama
NOES:
ABSENT:
ABSTAIN:

Harvey A. Bailey, President, Orange Cove Irrigation District

CERTIFICATE OF SECRETARY

I hereby certify that I am the Secretary of the Orange Cove Irrigation District and that the foregoing Resolution was duly adopted by the Board of Directors of said District at the Regular Meeting duly held in Orange Cove, California on November 9, 2005, at which meeting a quorum of said Board of Directors was at all times present and acting.

IN WITNESS WHEREOF, I have hereunto set my hand and seal of said District this 9th day of November, 2005.

John P. Roldan, Secretary
Orange Cove Irrigation District

INVOICE

MID VALLEY PUBLISHING, INC.

The Reedley Exponent * The Sanger Herald * Parlier Post
Orange Cove and Mt. Times * The Fowler Ensign

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REEDLEY, CA 93654

INVOICE NUMBER: 0212961-IN

INVOICE DATE: 11/30/04

SALESPERSON: Janie Lucio

Orange Cove Irrigation
P O Box 308
Orange Cove, CA 93646

CUSTOMER NO: OVIRRIGATION

DESCRIPTION	SIZE	QUANTITY	PRICE	AMOUNT
11/24/04 - Public Notice		9.000	6.550	58.95

NET INVOICE:	58.95
FREIGHT:	0.00
SALES TAX:	0.00
INVOICE TOTAL:	58.95

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Fresno, CA 93711-6162
559 449-2700
FAX 559 449-2715

March 28, 2006

Bill Little, City Administrator
City of Orange Cove
633 Sixth Street
Orange Cove, California 93646

Subject: Draft-Final Groundwater Management Plan
Orange Cove Irrigation District

Dear Mr. Little:

On behalf of the Orange Cove Irrigation District, enclosed for your use is one copy of the Draft-Final Groundwater Management Plan (GMP) for the Orange Cove Irrigation District, Hills Valley Irrigation District, and Tri-Valley Water District. The Orange Cove Irrigation District understands the importance of interagency management of groundwater and would appreciate your comments and thoughts on the GMP and local groundwater management.

Please provide any comments by Monday, April 17, 2006. If you have any questions then please feel free to contact myself at 559-449-2700, or John Roldan, Manager of the Orange Cove Irrigation District, at 559-626-4461.

Thank you very much for your time.

Very truly yours,

Owen Kubit, PE

Enclosure: As noted

APPENDIX B

FRESNO COUNTY GROUNDWATER ORDINANCE REGULATING GROUNDWATER EXPORTS

ORDINANCE NO. 00-013

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO ADDING TITLE 14, CHAPTER 03 TO THE FRESNO COUNTY ORDINANCE CODE REGULATING THE EXTRACTION AND TRANSFER OF GROUNDWATER FROM THE COUNTY OF FRESNO

The Board of Supervisors of the County of Fresno, State of California, ORDAINS AS FOLLOWS:

Title 14. Chapter 03 "Groundwater Management" is hereby added to the Fresno County Ordinance Code to read as follows:

CHAPTER 14.03. GROUNDWATER MANAGEMENT

Section 14.03.01. Declarations, Findings and Purpose.

(a) The protection of the health, welfare, and safety of the residents of the County, and the public benefit of the State, require that the groundwater resources of Fresno County be protected from harm resulting from the extraction and transfer of groundwater for use on lands outside the County, and from the harm resulting from the extraction of groundwater for use on lands within the County to substitute for the consequential transfer of surface water outside of the County, until such time as needed additional surface water supplies are obtained for use on lands of the County, or overdrafting is alleviated.

(b) Fresno County leads the nation in agricultural production. Groundwater, in conjunction with local and imported surface water, is an essential resource for continued agricultural production within the County, which production includes field crops, nut and fruit crops, vegetable crops, seed crops, livestock, and other products.

(c) Nearly all of the municipal and industrial water supply needs within Fresno County are met by the use of native or artificially recharged groundwater.

(d) Nearly all of the residential water supply needs within Fresno County are met by the use of native or artificially recharged groundwater.

(e) A large area of Fresno County is subject to conditions of critical groundwater overdraft.

(f) Areas of Fresno County are subject to limited groundwater availability.

(g) Areas of Fresno County are underlain by groundwater that has been contaminated or is of inferior quality.

(h) Areas of Fresno County are subject to land subsidence due to the extraction of groundwater.

(i) Fresno County does not generally enjoy a surplus of native and recharged groundwater available for transfer outside of the County.

(j) The long-established policy of the State of California and Fresno County favors groundwater management at the local level.

(k) Six groundwater basins (or portions thereof) as defined by the California Department of Water Resources' Bulletin 118-80 underlie Fresno County, and most of these basins are hydraulically connected.

(l) Fresno County is the only local agency overlying all of the groundwater basins within the County.

(m) The long term direct or indirect transfer of groundwater from Fresno County could have significant environmental impacts on Fresno County, including but not limited to increased groundwater overdraft; land subsidence; uncontrolled movement of contaminated groundwater; uncontrolled movement of inferior quality groundwater; the lowering of groundwater levels; increased groundwater degradation; and loss of aquifer capacity due to land subsidence.

(n) The long term direct or indirect transfer of groundwater from Fresno County could have significant economic impacts on Fresno County, including but not limited to loss of arable agricultural land; increased pumping costs due to lowered groundwater levels; increased groundwater quality treatment costs due to movement

of contaminated or inferior quality groundwater; replacement of wells due to declining groundwater levels; and replacement of damaged wells, conveyance facilities, roads, bridges and other structures due to land subsidence.

(o) Protection of the County's groundwater resources and the environment requires that the County adopt a permit process addressing the extraction of groundwater for long term use outside of the County or the long term extraction of groundwater to substitute for surface water transferred outside of the County.

(p) In adopting and codifying this groundwater management ordinance, the County does not intend to limit other authorized means of managing, protecting and conserving Fresno County groundwater, and intends to work cooperatively with local water agencies to continue their existing groundwater management practices as well as to implement joint groundwater management practices under the Groundwater Management Act and other applicable statutes, consistent with the plan goals of the Fresno County Groundwater Management Plan.

(q) Water Code section 1810(d) provides, in part, that a water conveyance facility cannot be used to transfer water if the transfer will unreasonably affect the overall economy or the environment of the county from which the water is being transferred. The Board of Supervisors of Fresno County determines that the County is qualified to make this determination. In adopting this ordinance, the County determines, to the extent such authority is granted to the County by section 1810(d), that transfers of water will or will not unreasonably affect the County's economy or environment.

(r) To ensure the continued vitality of the County's agriculture industry, the economy as a whole, and the general welfare of the citizens of the County, the County of Fresno is dedicated to proactively assist local water agencies in obtaining and maintaining adequate water supplies now and in the future.

(s) The conjunctive use of surface water supplies and groundwater for the purpose of crop production has been a historic practice in Fresno County; and applied surface water in excess of that consumed in the process of crop production has historically formed a source of groundwater recharge within Fresno County.

(t) Surface water supplies obtained in the future may be used conjunctively with groundwater. Surface water could be diverted in times of relatively high flows and groundwater could be used during periods when sufficient surface water is not available. To achieve this result, the most readily and economically available asset the County has in dealing with its water needs is its groundwater. Loss of the use of the groundwater would result in additional surface water needs. Groundwater resources must be protected so that groundwater supplies and aquifer capacity will be available for future conjunctive use.

(u) This Chapter establishes an effective County policy concerning the long term sale or other transfers of groundwater, including that extracted to substitute for surface water transfers, to protect the overall economy and environment of Fresno County. However, the County recognizes and supports the longstanding water management and water conservation efforts of local water agencies and their customers. The County does not intend that this Chapter interfere with or regulate the local water management practices of those local water agencies which are conducted during the course of their operations and that do not have long term negative impacts on the County's groundwater supply.

(v) This Chapter protects the County's important groundwater resources by requiring a permit from the County to extract on, a long term basis, groundwater for transfer outside the County, including groundwater extracted to replace a surface water supply that has been, is being, or will be transferred for long term use outside of Fresno County. This Chapter is limited to requiring a permit for the long term direct or

indirect transfer of groundwater outside the County and is not intended to regulate groundwater in any other way.

Section 14.03.02. Definitions.

(a) "Aquifer" means a geologic formation that stores, transmits and yields significant quantities of water to wells and springs.

(b) "Board" means the Board of Supervisors of Fresno County.

(c) "Carry over water" means water which has been made available to a local water agency under its contract to receive water from the U.S. Bureau of Reclamation, but was not used within the water year in which it was made available to the local water agency.

(d) "Conjunctive use" means the planned joint use of surface and groundwater. Conjunctive use anticipates that by using surplus surface water to recharge the aquifer and conserve groundwater supplies, that surplus water will then be available for future pumping when surface supplies are not adequate to meet then-current demands.

(e) "County" means the County of Fresno.

(f) "Department" means the Department of Planning and Resource Management.

(g) "Director" means the Director of the Department of Planning and Resource Management or his or her designee.

(h) "Emergency" means an unexpected occurrence demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property or essential public services. Emergency includes such occurrences as fire, flood, storm, drought, plant infestation, and earthquake or other soil or geologic movement.

(i) "Groundwater" means all water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but

does not include water that flows in known and definite channels over which the State Water Resources Control Board exercises authority.

(j) "Groundwater Banking" means the direct or in lieu recharge of local or imported water for purposes of later extraction and transfer out of Fresno County.

(k) "Groundwater Management Act" means Water Code § 10750 et seq.

(l) "Historical movement of water" means the redistribution of water undertaken in a manner, and in amounts similar to, that which has occurred in at least two (2) of the past twenty (20) years immediately preceding the effective date of this ordinance.

(m) "Imported water" means any water originating outside the County which, in the absence of actions by the importing party, would not have been available or placed to beneficial use in the County.

(n) "In lieu recharge" means the intentional delivery and use of surface water as a substitute for pumping groundwater.

(o) "Indirect transfer" of groundwater means the extraction of groundwater to replace a surface water supply that has been, is being, or will be transferred for use outside of Fresno County.

(p) "Local water agency" means any local public agency, mutual water company, or non-profit tax-exempt unincorporated association within, or partially within, Fresno County that has authority to undertake water-related activities.

(q) "Long term" means a time period of more than two (2) years.

(r) "Long term transfer" means a change in the place of use of water from within the County to lands outside of the County pursuant to a contract or a series of inter-related or inter-dependent contracts that requires a cumulative commitment in excess of two (2) years.

(s) "Overdraft" means the withdrawal of water from an aquifer in excess of the amount of water that recharges the basin over a period of years during which water supply conditions approximate average, and which, if continued over time, could eventually cause the underground supply to be exhausted, cause subsidence, cause the water table to drop below economically feasible pumping lifts, cause a detrimental change in water quality, or produce other adverse environmental impacts.

(t) "Recharge" means flows to groundwater storage from precipitation, irrigation, infiltration from streams, spreading basins, and other sources of water.

(u) "Short-term water transfer" means changing the place of water use from within the County to lands outside the County for a period of two (2) years or less.

(v) "Subsidence" means lowering or sinking of the land surface as a result of the extraction of groundwater.

(w) "Transfer" means changing the place of groundwater use from within the County to lands outside the County, either by direct transfers or indirect transfer as specifically defined in subdivision (o) above.

(x) "Water exchange" means the contractual transfer for use outside of the County of water, either groundwater or surface water to be temporarily replaced with groundwater, coupled with measures that ensure the replacement within the County of the transferred water.

(y) "Water table" means the surface or level where groundwater is encountered in an unconfined aquifer.

Section 14.03.03. Permit Required for Transfer for Use Outside County. It shall be unlawful to extract groundwater underlying lands in Fresno County, for transfer directly or indirectly, outside the County, unless exempted by this ordinance, without first obtaining a permit as provided herein.

Section 14.03.04. Administrative Structure. Applications for permits shall be filed with the Director of the Department of Planning and Resource Management. Said applications shall be reviewed by the Director or designated appointee.

Section 14.03.05. Exemptions. Permit requirements of this Chapter shall not apply to the following types of groundwater-related activities:

A. The historical movement of water within a single local water agency's boundaries or service areas, or private property boundaries within and contiguous to Fresno County, for water management purposes and to benefit said lands;

B. Water exchanges;

C. Short-term water transfers;

D. Groundwater Banking programs undertaken by local water agencies in which the banked water originates within a watershed that lies wholly or partially within Fresno County, or is carry over water, where later extraction and transfer of the banked water does not exceed the initially banked amount of water less reasonably anticipated losses.

The County may require local water agencies claiming to be engaged in exempted water banking activities to provide periodic written reports, including supporting data, to confirm their exemption;

E. Groundwater extraction and transfer by a local water agency that has executed a memorandum of understanding or other agreement with the County that references this subsection and that allows the County to make the same six findings stated in Section 14.03.08, subdivision (a), of no significant detrimental impacts on the groundwater resources of Fresno County; and

F. Direct or indirect transfer of groundwater as the result of an emergency as defined in Section 14.03.02, subdivision (h).

Section 14.03.06. Application for a Permit. An application for a permit shall be filed with the Director and shall contain all information required by the Department. The applicant shall provide within the timeframe required by law, where applicable, at applicant's cost, such appropriate environmental documentation as may be required by the California Environmental Quality Act ("CEQA", Public Resources Code § 21000 et seq.) and Fresno County Guidelines. The applicant shall pay all County costs related to the processing of the permit application, as reasonably determined by the County pursuant to the Department of Planning and Resource Management's routine permit fee assessment process. If the applicant is a local water agency subject to CEQA, the County shall coordinate its CEQA activities relative to the application with those of the applicant so as to minimize CEQA-related costs and duplication of efforts, subject to the County's CEQA obligations.

Section 14.03.07. Procedures for Processing.

(a) Within fifteen (15) calendar days of filing of the permit application and the deposit of required fees, and determination by the Director that the application is complete, the Director shall post a notice on the Board of Supervisors public bulletin board that an application has been filed. The Director shall send a copy of the notice and the application to: (1) all owners of real property as shown on the latest equalized assessment roll within one (1) mile of the location of the proposed extraction; (2) all local water agencies and other water agencies which own or include lands overlying or immediately adjacent to the location of the proposed extraction; and (3) to any party who has made written request to the Director for such notice within the last twelve (12) calendar months. Said notice shall provide recipients the opportunity to submit written comments on the application within fifteen (15) calendar days of mailing of the notice.

(b) As determined by the judgment of the Director, the Director shall review the application with potentially affected County departments, with the staff of applicable state and federal agencies, with local water agencies, and with any potentially affected party. In reviewing the application the Director shall consider any relevant groundwater management plan which has been adopted pursuant to the Groundwater Management Act or any other relevant information provided by the applicant.

(c) Any person or agency may provide written comments relevant to the long term extraction and transfer of groundwater. Written comments shall be submitted to the Director within fifteen (15) calendar days of the date of mailing the notice of filing of the permit application to the address specified in the notice.

(d) Upon completion of the environmental review and permit application review process, the Director shall determine whether the application meets the requirements of this Chapter, and if it does, the Director shall approve the application.

(e) Notice of the Director's decision shall be mailed within fifteen (15) calendar days of final action to the person or entity who has applied for the permit, and all other persons or entities referred to in subdivision (a) of this section.

Section 14.03.08. Findings Required for Permit Approval or Denial by the Director.

(a) The permit shall be approved only if the Director finds that the proposed long term groundwater extraction and transfer will not have significant detrimental impacts on the groundwater resources of Fresno County by determining that:

(1) The long term extraction and transfer will not cause or increase an overdraft of the groundwater underlying the County;

(2) The long term extraction and transfer will not adversely affect the long term storage or transmission of groundwater within any aquifer(s) underlying Fresno County;

(3) The long term extraction and transfer will not injure the reasonable and beneficial uses of groundwater by other overlying groundwater users within Fresno County;

(4) The long term extraction and transfer will not result in, expand, or significantly exacerbate groundwater degradation;

(5) The long term extraction and transfer will not result in injury to a water replenishment, storage, restoration, or conveyance project; and

(6) The long term extraction and transfer will not unreasonably affect the overall economy or environment of the County.

(b) The basis for any denial shall be reflected in the Director's official record of proceedings.

Section 14.03.09. Conditions of Permit Approval. If the permit is approved, the Director shall impose the following conditions of permit issuance on the permitee, if the permitee has not already so provided, to prohibit overdraft or other adverse conditions:

(a) Adopt a groundwater management plan, where applicable, pursuant to the Groundwater Management Act that is consistent with the County's groundwater management plan.

(b) Institute, where applicable, a groundwater monitoring and mitigation program associated with permitee's extraction of water that is consistent with the County's groundwater management plan.

(c) If requested by the County, the permitee shall share with the County groundwater monitoring information and data, and, where practicable, the parties shall coordinate their groundwater management efforts to effectively monitor groundwater resources throughout the County.

(d) Comply with additional conditions for permit issuance as the Director finds necessary to promote or maintain the health, safety and welfare of Fresno County residents.

Section 14.03.10. Reapplication After Director Denial. Reapplication for a permit that has been denied by the Director will not be accepted as complete unless it includes materially different terms, or is accompanied by information that demonstrates a significant change in circumstances, from those which caused denial of the previous permit application.

Section 14.03.11. Appeal of Director Action.

(a) The applicant or any property owner or local water agency, as described in Section 14.03.07, subdivision (a), subsections (1) and (2), who can demonstrate that its water supply or property interest could be directly and adversely affected by the Director's decision, may appeal a decision of the Director by filing a written request with the Clerk of the Board within fifteen (15) calendar days of receipt of the decision of the Director. Any such appeal shall specifically set forth the procedural and substantive reasons for the appeal. The Clerk shall set a Board hearing date within ten (10) calendar days of receipt of a complete request for appeal which shall be heard within not less than ten (10) calendar nor more than twenty (20) calendar days of that notice. Written notice of the appeal shall be given to the Director, the appellant, and all other persons or entities referred to in Section 14.03.07, subdivision (a).

(b) The Board shall hear the appeal de novo (i.e., anew, over again), except where the appeal is confined to a condition imposed by the Director in which event the hearing and the decision of the Board shall relate only to such condition. The appeal before the Board shall not be conducted with formal rules of evidence, but rather shall be conducted under such rules as set by the Board for the expeditious presentation of the matter and relevant information by the appellant and by other parties interested in

the Director's decision. At its discretion, the Board may impose conditions for approval as it finds necessary to protect the interests of the County and its citizens. The decision of the Board shall be final.

(c) In any appeal taken under this section, the appellant shall have the burden of proof before the Board.

Section 14.03.12. Duration of Permit. Approved permits shall be valid for a term, as determined by the Director, not to exceed ten (10) years from the date of issuance of the permit. Long term permits of a duration beyond ten (10) years may be approved by the Director upon an applicant's proof that the nature of the applicant's project or financing justifies such an extended duration. As a condition of approval of a long term permit the applicant shall be required to provide the County with periodic reports (as specified in the permit) which include, but are not limited to, groundwater monitoring data and a detailed explanation of any proposed material changes in the project which may impact County groundwater supplies.

Section 14.03.13. Review of Permit. The permit granted pursuant to this Chapter shall be subject to periodic staff review, performed in consultation with the permitee. In the event the Department of Planning and Resource Management determines that a material violation of the conditions of the permit has occurred, the permitee shall forthwith bring itself into compliance. A determination of violation shall be in writing and include specific findings in support of the decision. A determination of violation may be appealed to the Board of Supervisors by the permitee using the appeal process as described in Section 14.03.11.

Section 14.03.14. Inspection. After providing written notice to the permitee the Director, or designee, with good cause may at any reasonable time enter any and all places, property, enclosures and structures, for the purpose of making examinations

and investigations to determine whether any provision of this Chapter or an approved permit is being violated.

Section 14.03.15. Limitation of Permit. The permit process of this Chapter is not to be construed as a grant of any right or entitlement, but rather, as evidence that the health, welfare, and safety of the residents of the County will not be harmed by the extraction and direct or indirect transfer of groundwater outside of the County. The permit does not exempt, supersede, or replace any other provisions of federal or state laws or regulations.

Section 14.03.16. Notice of Violation. Upon receiving knowledge of an alleged violation of the Ordinance, the County will provide written notice of the alleged violation to the violating party. The notice shall detail the alleged violation and require the violating party to cease and desist immediately upon receipt of said notice from the alleged violating activities or within five (5) working days prove to the County, by meeting with the Director or designated appointee, that the alleged violating activities, in fact, do not violate the Ordinance, or that there are mitigating reasons surrounding the alleged violating activities. No civil fines, as set forth in Section 14.03.17, shall accrue during this notice process. The notice shall also include details of the potential penalties for violations of the Ordinance.

Section 14.03.17. Penalty for Violation. If, within five (5) working days after receipt of a notice issued in accordance with Section 14.03.16, the violating party has not complied with Section 14.03.16, the County may elect to proceed with any or all of the following remedies for violation of this Chapter:

(a) A civil action against the violator, including injunctive relief.

(b) A civil action against the violator, including a fine up to $5,000.00 for each separate violation. A person or entity shall be deemed to have committed a separate violation for each and every day or portion thereof during which any such

violation is committed, continued, or permitted as well as for each and every separate groundwater well within which any such violations are committed, continued or permitted.

Section 14.03.18. Severability. If any section, subdivision, subsection, sentence, clause or phrase of this Chapter is for any reason held illegal, invalid or unconstitutional by the final decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions thereof. The Board hereby declares that it would have passed this Chapter and each section, subdivision, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subdivision, subsections, sentences, clauses, or phrases be declared illegal, invalid, or unconstitutional.

Section 14.03.19. Effective Date. The provisions of this Ordinance shall be effective as to the unincorporated territory of the County thirty (30) calendar days after passage. However, implementation of the provisions of this ordinance shall be effective when the amendment to the Development Services Fee Schedule shall become effective. The provisions of the Ordinance shall become effective in the incorporated territory of the municipalities within the County of Fresno upon adoption by each municipality of an ordinance which makes the provisions of this Ordinance applicable thereto or which independently establishes an ordinance incorporating compatible provisions.

Section 14.03.20 Review. Ten (10) years from the date that this Ordinance is enacted, and at such earlier time(s) as the Board shall determine to be appropriate, the Board shall review the effectiveness of this Ordinance in protecting the County's groundwater relative to the preservation of a natural resource, the environment, and the economy and relative to impacts on the operations of local water agencies and property owners.

THE FOREGOING was passed and adopted by the following vote of the Board of Supervisors of the County of Fresno this 19th day of September, 2000, to-wit:

AYES: Supervisors Koligian, Arambula, Levy, Oken, Case

NOES: None

ABSENT: None

CHAIRMAN, Board of Supervisors

ATTEST:
SHARI GREENWOOD
Clerk, Board of Supervisors

By _____
Deputy

File #16162

Agenda #15

Ordinance #00-013

APPENDIX C

ANNUAL GROUNDWATER REPORT OUTLINE

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GROUNDWATER BANKING PLAN

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WATER MANAGEMENT PLAN

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Attachment H is not applicable to the District

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FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

Attachment I is not applicable to the District, they are not an Urban water provider.

ATTACHMENT J

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WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

FRIANT WATER AUTHORITY

April 2011

Volume 23, No. 206

FRIANT Waterline

Big Runoff Begins But Is Under Control

Bureau's Restoration Water Decision Boosts Friant Use

Peak snowmelt and runoff have begun with remaining snowpack water content within the San Joaquin River watershed double what it should normally be on May 1.

U.S. Bureau of Reclamation and Friant Water Authority water managers, however, are not particularly worried. A well-planned strategy of aggressive Friant Dam releases, coupled with cooler than average spring temperatures to date, has carved out a great deal of welcomed storage space in Millerton Lake.

STORAGE CUT IN HALF

As of May 2, the reservoir behind Friant Dam contained 223,674 acre-feet of water, less than half of what was in storage on March 26 during a late winter and early spring stretch of potent storms.

With the San Joaquin River's full natural flow and actual Millerton inflow remaining at least a few thousand cubic feet per second less than releases on each

Please see **Runoff**, Page 3

Arvin-Edison Water Storage District

Accident victim John Collins, former Bakersfield College President, is reached on his partially submerged car in the Arvin-Edison Canal April 13 by a Bakersfield emergency staff member suspended from a helicopter following a harrowing accident.

Arvin, Friant Staffs Help Save Driver

Friant Water Authority and Arvin-Edison Water Storage District canal operations staff members assisted with quick and effective emergency water management actions during a dramatic April 13 rescue of former Bakersfield College President John Collins, driver of a car that veered into the Arvin-Edison Canal in Bakersfield.

The car driven by the 93-year-old Collins drifted across Truxton Avenue, through a fence and into the canal not far below its headworks from the Friant-Kern Canal.

SNAGGED BY CABLE

By good fortune, the car landed backwards in the canal, its trunk sprung open. Although the rushing current rapidly pushed the car nearly a half mile downstream, the trunk lid jammed into a safety cable where the vehicle wedged in place.

Had the vehicle not been snagged, the car might have been swept further down the

Please see **Rescue**, Page 3

Restoration Leader

Alicia (Ali) Forsythe, the new San Joaquin River Management Program Manager, and her colleagues will be kept busy with the draft environmental study. *(For more on her appointment, please see Page 3.)*

Friant Water Authority / J. Randall McFarland

SAN JOAQUIN RIVER RESTORATION PROGRAM

Draft Environmental Study Issued

An 8,000-page environmental blueprint that is to guide San Joaquin River Restoration Program (SJRRP) planners and designers has been released for public review and comment.

The long-awaited series of documents – a draft federal program environmental impact statement and state environmental impact report (PEIS/R) was released April 22 by the U.S. Bureau of Reclamation and the California Department of Water Resources (DWR).

'UNAVOIDABLY' DELAYED

For the first time in so public a manner, the Bureau acknowledged that the program that is to restore flows and a salmon fishery to all San Joaquin River reaches between Friant Dam and the Merced River has run into delays.

"Reclamation recognizes that some actions required by the Settlement are unavoidably behind schedule," the Bureau stated in a news release. "This includes certain channel and structural improvement projects that may be beneficial for

Please see **Study**, back page

New Deputy Resources Chief Meral Meets Friant Leaders

Jerry Meral, Governor Brown's new State Resources Agency Deputy Director, has had a first-hand look at key San Joaquin River Restoration Program locations and has received a primer on Friant Division water issues, needs, programs and hopes explained by numerous Friant water leaders.

Meral's April 7 view of the central San Joaquin Valley was marked by heavy rain and flood releases that swelled the San Joaquin River's flows and obscured evidence of critically dry conditions which had prevailed until this winter's big storm events.

VIEWS SWOLLEN RIVER

Friant Water Authority leaders conducted a tour of portions of west valley reaches of the San Joaquin River and its associated flood control bypass channels.

"We had planned to show some of the in-channel challenges being faced by the

Please see **Meral**, back page

Deputy Resources Secretary Jerry Meral (left) with Tulare Irrigation District General Manager J. Paul Hendrix

Friant Water Authority

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FRIANT
Waterline
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Volume 23, No. 206
Published by the Friant Water Authority, as a review of issues and developments to inform those interested in water supplies along the East Side of the southern San Joaquin Valley. To comment or ask any questions, please write or call us at (559) 562-6305, visit our web site at *www.Friantwater.org* or contact your local irrigation district. This issue was printed May 3.

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HOUSE WATER AND POWER SUBCOMMITTEE

Hearing In Fresno Airs Valley Water Frustration

San Joaquin Valley water supply frustrations were the focus of an April 11 House Water and Power Subcommittee field hearing at Fresno City Hall.

The hearing's published theme – "Creating Jobs by Overcoming Man-Made Drought: Time for Congress to Listen and Act" – set the tone that one speaker after another followed.

One Friant Water Authority board member, Kaweah-Delta Water Conservation District Vice President Mark Watte, testified during the well-attended hearing.

Those attending armed themselves with signs linking water supply curtailments – such as those that plagued the valley in the years before the current above-average precipitation – with job losses, economic woes, social problems, higher food costs and environmental difficulties.

FEDS BLAMED

The overwhelming mood was one of placing blame on federal government agencies, bureaucrats, regulations and court decisions for the grief caused in cutting Central Valley Project water supplies in the west valley to as low as 5% in 2009. That resulted in thousands of job losses, hundreds of thousands of idle acres and millions of dollars in economic damage.

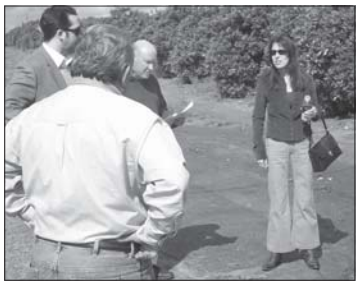
Water and Power Subcommittee Chairman Tom McClintock (*R-Elk Grove*) blamed the political left for advocating what he termed "politically motivated junk science."

"The House and Senate must act now," said a valley Congressman, Rep. Devin Nunes (*R-Visalia*) in commenting on the valley's water crisis and Delta pumping restraints. "The time for studying and talking is over."

Rep. Jim Costa (*D-Fresno*) told an interviewer after the hearing, "I think anytime you can continue to find greater awareness to the problems we're facing here. That's helpful."

One of the few dissenting voices was that of Larry Collins, Pacific Coast Federation of Fishermen's Associations Vice President, who defended

Please see **Hearing**, Page 3


Friant Water Authority

Assembly Member Makes Friant Visit

Assembly member Linda Halderman listens to a presentation by Orange Cove Irrigation District Manager Fergus Morrissey during an April 8 Friant Division tour. Also listening (left) is Assembly Republican Caucus Chief Consultant Doug Haaland and Friant Water Authority Assistant General Manager Mario Santoyo.

AROUND FRIANT

TULE RIVER

Corps Says No To Testing Higher Storage In Lake Success

Lake Success on the Tule River will remain less than half full in the wake of a U.S. Army Corps of Engineers decision to scrap a data gathering test this spring that would have increased permitted storage .

Had the plan been approved, the lake's maximum water surface elevation would have been increased 10 feet.

Storage in Lake Success has been restricted by the Corps since 2004 due to seismic safety concerns.

The surface level now is normally allowed no higher than 630 feet above sea level, or 40,000 acre-feet. That is 10 feet higher than the initial restriction.

The reservoir's as-built capacity is 82,300 acre-feet.

Corps officials for several years have been working on a solution to concerns that the dam's foundation and structure might be susceptible to failure in a major earthquake. The test had been intended to help the Corps find the highest safe level for water storage.

The Corps felt the risk was too high to undertake such a test..

Increased storage would have been beneficial to Tule River water users, and would have enhanced recreation.

Favoring the test were the Porterville Irrigation District, Tulare County, City of Porterville, Lower Tule River Irrigation District and Vandalia Irrigation District.

President Obama's 2012 budget includes funds to begin purchasing land below the dam, including a mobile home park. No funding is in place for replacing Success Dam. Published reports indicate the project cost is now estimated to be more than $450 million.

KERN RIVER

Isabella Dam Plans Expected

The U.S. Army Corps of Engineers is expected to conduct public meetings during May to explain how it believes problems with Isabella Dam can best be resolved.

The facility is now ranked among the Corps' most at-risk dams.

Seepage below the auxiliary dam, concerns over an earthquake fault running through the site and fears of insufficient spillway size have dogged the facility and led to restrictions on water storage.

A bigger auxiliary spillway will be proposed to be part of the solution so a greater spill could be handled without overtopping the earth-fill dams.

Lawsuit Will Challenge New Take Limits

State's Salmon Fishermen Are Gleeful Over 2011 Prospects, Long Season

While commercial salmon fishermen are ecstatic over prospects for what they believe could be their best season in years, a lawsuit is being prepared against two agencies over this season's expanded take limits.

A complaint was expected to be filed in early May (after WATERLINE press time) on behalf of the San Joaquin River Group Authority, of which the Friant Water Authority is a member, against the National Marine Fisheries Service (NMFS) and Pacific Fishery Management Council (PFMC).

The San Joaquin River Group Authority (SJRGA) is a joint powers authority that includes irrigation and water districts in the San Joaquin River Basin.

TAKE LIMITS QUESTIONED

The lawsuit, expected to be filed in a U.S. District Court, will seek a court determination that the agencies were arbitrary in their permitting of this season's salmon take limits, and requiring that the agencies start over.

At the heart of the suit is an allegation that the large amount of ocean take of salmon to be allowed by the new limits will cause species recovery programs in California rivers to suffer, resulting in even fewer fish in the future.

With the salmon season opening, the lawsuit is not expected to be of much help to the SJRGA this year.

"There is nothing we can do to put a stop to the current fishing season. Federal law does not allow that," a SJRGA statement said. "The best we can do is hope that over harvesting salmon is not permitted again in the future."

The lawsuit will reportedly seek to show that the PFMC's forecasting model is flawed and that hatcheries are having too much harmful influence. The plaintiff believes hatchery fish are increasing in the proportion of the fall-run Chinook salmon stock, leading to progressively less genetic diversity, less species resilience, and greater vulnerability to catastrophic occurrences such as poor ocean conditions that existed from 2007-09.

SALMON RECOVERY

Ronald D. Jacobsma, Friant Water Authority General Manager, said the SJRGA, as well as many other state and federal agencies, is working hard to promote recovery of fall-run Chinook and spring-run Chinook salmon in the San Joaquin basin.

Spring-run is a "threatened" species under the Endangered Species Act. It was extirpated from the basin, but there are substantial on-going efforts now to reintroduce spring-run.

A major part of that effort is to be the San Joaquin River Restoration Program in which Friant Division contractors of Central Valley Project water are involved deeply. The SJRGA's Vernalis Adaptive Management Program is also aimed in restoring salmon in the San Joaquin River Basin.

Fall-run salmon are not listed, but are an ESA candidate species.

AGENCIES TARGETED

SJRGA officials point out that the same state agency – the Department of Fish and Game (DFG) – and federal agencies (NMFS and U.S. Fish and Wildlife Service [USFWS]) authorizing a substantial commercial harvest of salmon this year have acted in past years to stop or critically reduce Delta water export pumping from the Delta to, in part, protect spring and winter-run salmon.

"The amount of fishing those agencies are allowing this year will kill many, many times more salmon than the Delta pumps ever did," the SJRGA said in a statement. The same state and federal agencies continually demand higher flows and more water released from reser-

Please see **Lawsuit**, Page 3

Arvin-Edison Water Storage District

Even with lower post-rescue flows, water still poured over the car.

Rescue: Water Cut To Help Victim Escape From Canal

Continued from front page

canal to where its cold and rushing waters fall into a siphon that carries Arvin-Edison's water under the Kern River.

Collins was also able to open the car's sunroof and stand on a seat as the car filled with cold water.

Four Arvin-Edison Water Storage District staff members responded immediately as did Bakersfield police and fire rescuers, who initially reported having trouble locating the car in the high rushing water.

FWA STAFF CUTS FLOWS

Once at the scene, rescuers got a life vest to Collins that he put on but could not secure. With the water moving too fast to put a swimmer in the water, Arvin-Edison asked the Friant Water Authority staff for an emergency cutoff of flows from the Friant-Kern Canal.

Friant's staff was able to quickly reduce the diversion by 485 cubic feet per second to greatly ease the rescue effort.

A helicopter was used to lift Collins out of the vehicle and onto a gurney. He was rushed to a Bakersfield hospital. Collins was cold but not injured. The car was then lifted by crane from the canal.

Eric Quinley, Friant Water Authority Maintenance Manager, said the Authority coordinated with the City of Bakersfield and river operators but no spill into the Kern River from the Friant-Kern Canal's Terminal Check was necessary during the 45 minutes that water was cut off from the Arvin-Edison Canal.

Hearing: Fresno Frustration

Continued from Page 2

the government's role in salmon protection by saying, "The more water you take out of [the Delta], the more you guarantee the death spiral of my industry." Collins blamed "corporate billionaire agribusinesses" for the troubles of fishermen, an assertion that was aggressively challenged by Nunes.

BAKERSFIELD MEETING

Meanwhile, a Bakersfield meeting was held April 27 by Kern County farmers, the Kern County Water Agency and Rep. Kevin McCarthy to seek solutions to the water supply crisis, including easing Endangered Species Act restrictions to curtail water deliveries.

Means of resolving Delta problems, including new water conveyance facilities such as a user-financed canal or tunnel, were discussed.

"We are not asking the government to pay for it, we are just asking to find common sense regulations so we can get it into the ground and get it moving," said McCarthy.

Frustration was also expressed over difficulties in separately meeting similar state and federal regulations.

Delta Bypass Study Hits A Snag In Court

A San Joaquin County judge has thrown a monkey wrench into state plans to drill and take soil samples for a water conveyance bypass tunnel or canal through or around the Delta.

The court ruled access to private lands proposed by the state Department of Water Resources under the Bay Delta Conservation Plan is a taking of land.

The ruling is a major problem for the facility's planners but was cheered around Stockton where a modern-day version of the Peripheral Canal is strongly opposed.

State officials said they may appeal but will work toward obtaining access by using eminent domain.

The state wants to take core samples at hundreds of locations for facility planning and design.

Lawsuit: Salmon Actions Targeted

Continued from Page 2

voirs to preserve and enhance the salmon fishery.

A state and federal goal of doubling natural production of Chinook salmon "will not be achieved if high levels of salmon fishing are allowed to continue," the SJRGA said.

SALMON RETURNS UP

Meanwhile, it is estimated this year's Chinook salmon run will be the best since 2007, with an estimated 730,000 Chinook now expected to return to the Sacramento River.

In 2009, a record-low 39,500 Chinook returned to the river to spawn. The commercial salmon season is to last through September. California's salmon fishing season in recent years has been cancelled or greatly curtailed.

SAN JOAQUIN RIVER RESTORATION

Reclamation Names New Program Manager

The San Joaquin River Restoration Program has a new U.S. Bureau of Reclamation manager.

Alicia (Ali) Forsythe, who has been the Acting Program Manager since January 2011, was named earlier this spring to head the complex planning and implantation effort.

"Ali is a great selection to head the Restoration Program," said Friant Water Authority General Manager Ronald D. Jacobsma. "She is uniquely qualified and experienced to deal with the multi-faceted challenges the program is already facing. We look forward to working with her as the Program Manager."

IMPLEMENTATION

The Restoration Program is being implemented as a result of the San Joaquin River litigation Settlement agreed to nearly five years ago by the lawsuit's environmental plaintiffs, led by the Natural Resources Defense Council (NRDC); Friant Division water agencies; and the U.S. government.

Restoration of flows and fishery habitat, with an objective of restoring a salmon fishery between Friant Dam and the Merced River, are program objectives along with a co-equal Water Management Goal. Under the Settlement, the Settling Parties agreed to strive to return all or much of the water given up by Friant districts for river restoration.

The Bureau's Regional Director, Donald Glaser, said Forsythe "has been involved with San Joaquin River issues for many years and has gained the respect of the organizations and individuals who are working together to implement this important restoration program."

COORDINATION

Forsythe is to coordinate with:

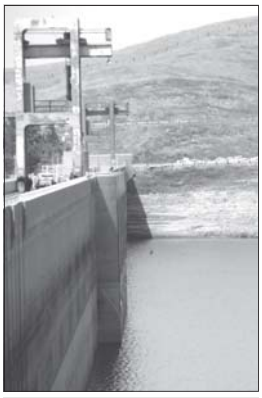
- The other SJRRP Implementing Agencies (U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Water Resources, California Department of Fish and Game).
- The Settling Parties (NRDC and Friant Water Authority).
- The Restoration Administrator (selected jointly by NRDC and FWA to provide recommendations regarding specific elements of the Settlement).
- Downstream landowners and water districts, and many other entities.

BACKGROUND

Forsythe has managed various National Environmental Policy Act, California Environmental Quality Act, water rights and restoration projects in both the public and private sectors.

She began her federal career with Reclamation in 2009 on the SJRRP staff. Forsythe led the program's interim flow activities and three on-going site-specific channel and structural improvements projects, oversaw the program's budget and schedule, and helped establish and implement SJRRP policies and direction. Prior to joining the Mid-Pacific Region, she was a project manager with CH_2M Hill.

Forsythe holds Bachelor of Science degrees in Environmental Studies and Hydrologic Sciences from the University of California, Santa Barbara.



Friant Water Authority

Millerton Lake's level, which looked low in mid-April, has dropped even more since then.

Runoff: Millerton Storage Makes Room For Snowmelt

Continued from front page

day for well over a month, reservoir storage has continued to decline. Flood releases into the river, which briefly were near the channel capacity of 8,000 c.f.s., have been reduced as demands have increased and reservoir storage has dropped. Nearly all of that flood release water has flowed to the ocean.

Friant districts were slow to step up water orders, for irrigation or groundwater recharge purposes, because all local streams have also been handling flood release flows. Until recently, spring rains had made many fields too wet for cultural work or irrigation.

RECOVERED WATER

A help in creating demand in early April was a decision by the U.S. Bureau of Reclamation to make available 460,000 acre-feet of Recovered Water Account (RWA) water credits for Friant Division long-term contractors under the San Joaquin River Restoration Program's Water Management Goal.

RWA water is available at a cost of $10 per acre-foot to all Friant Division long-term contractors who experience a reduction in water deliveries due to the flows called for in the Settlement to restore the San Joaquin River.

"These advanced RWA water credits are being made available to take advantage of this year's unusually wet hydrologic conditions for the purpose of reducing or avoiding future water supply impacts," a Bureau statement said. "The additional 460,000 acre-feet of RWA water credits is based on projections of anticipated future water supply impacts as a direct result of the flows called for in the Settlement."

FULL SUPPLY FOR NOW

In addition, the current Friant "uncontrolled season" water supply conditions – featuring full supplies of Class 1 and Class 2 water – are to continue throughout May and possible into June, according to Michael Jackson, Reclamation's Area Director in Fresno.

Deliveries of "Section 215" (unstorable) water to non-Central Valley Project contractors will continue until demands fill the Madera and Friant-Kern canals, Bureau staff member Ed Salazar said. He explained that even with the big storage reduction, a huge snowpack remains and more water needs to be moved out of fairly small Millerton Lake.

The May 1 snow surveys of nine San Joaquin River watershed courses show snowpack water content that is 199% of the May 1 average, and 163% of what is considered normal for April 1, the date upon which snow conditions are assumed to peak.

San Joaquin River runoff is currently expected to be 164% of average in the April-through-July peak period, or 2,060,000 acre-feet.

Corps Faces Lawsuit Over Rules For Levees

At a time when one federal agency after another is striving for improved riparian and fishery habitats along and in California rivers, another agency is demanding that vegetation vanish from Central Valley levees.

The U.S. Army Corps of Engineers in 2007 began imposing a clear-off-the-levees policy across the nation.

Now, two environmental organizations have served notice they will sue the Corps for violating the Endangered Species Act (ESA).

The Sacramento *Bee* reported that the Corps' rules do not state implicitly that all trees and vegetation – except for grass – must be eliminated but such is the practical effect.

Should levee operators not comply and a damaging flood were to occur, federal aid would not be forthcoming.

The Corps has suspended the rules from taking effect within the Central Valley until 2012.

ALLEGATIONS

Friends of the River and Defenders of Wildlife plan to sue against the rules. They allege the Corps failed to consult as required with other federal agencies to ensure the rules would not cause environmental harm. Nor did the Corps study environmental consequences, as required by the ESA, the organizations say.

Friant Water Authority / J. Randall McFarland

As the flood release-swollen San Joaquin River flows by at Sand Slough, north of Dos Palos, Friant Water Authority Water Resources Manager Stephen Ottemoeller points to a map to show state Deputy Resources Secretary Jerry Meral key locations in the San Joaquin River Restoration Program between Friant Dam and Merced River.

Study: Restoration's Impacts

Continued from front page

successful reintroduction of salmon." The latter is currently scheduled to occur by the end of 2012.

The schedule and projects were included in the Settlement of 18-year litigation reached several years ago by the plaintiffs – an environmental coalition led by the Natural Resources Defense Council – on one hand and the U.S. government along with the FWA and many of its member Friant Division districts on the other.

The Bureau says it "will promptly initiate consultation with the parties to the [San Joaquin River] Settlement to develop a new schedule based upon the PEIS/R that assures implementation of the Restoration Program in a manner that addresses the requirements of the Settlement for expeditious action while meeting the requirements of the legislation to minimize impacts on third party interests."

FOUR HEARINGS IN MAY

Four public hearings and open houses of 2½ hours each have been scheduled in valley locations during May to explain the PEIS/R, which took three years to compile, as part of a 60-day public comment period. (*Please see story, lower left.*)

Federal and state officials say the joint document describes direct, indirect and cumulative impacts of implementing the SJRRP. Agencies involved include Reclamation, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game and DWR.

General Manager Ronald D. Jacobsma said the Friant Water Authority's first task is to coordinate review and comment responsibilities among Authority and member district staff members. Comments on the massive document are due June 21.

The PEIS/R is required under federal and state laws, and is considered crucial to implementing the comprehensive, long-term effort to restore flows to the San Joaquin River below Friant Dam to restore a self-sustaining Chinook salmon fishery in the river. The SJRRP is also to reduce or avoid adverse water supply impacts from restoration flows.

Four Hearings Set On Restoration's Environmental Plan

Four public hearings will be held from May 24-26 around the Central Valley as the U.S. Bureau of Reclamation and California Department of Water Resources solicit input on the San Joaquin River Restoration Program's newly released draft program environmental impact statement and environmental impact report.

Each public hearing will include an open house portion during which the Restoration Program staff will be available to talk with public. Formal public hearings will follow to gather comments.

The meetings will be held:

In Visalia

- Tuesday, May 24, 10 a.m. - 12:30 p.m., Lampliter Inn, 3300 West Mineral King Avenue.

In Fresno

- Tuesday, May 24, 6 p.m. - 8:30 p.m., Piccadilly Inn-University, 4961 North Cedar Avenue.

In Los Banos

- Wednesday, May 25, 6 p.m. - 8:30 p.m., Merced County Fairgrounds, 403 F Street.

In Sacramento

- Thursday, May 26, 1:30 p.m. - 4 p.m., Holiday Inn-Capitol Plaza, 300 J Street.

Meral: Visits River, Friant

Continued from front page

Bureau of Reclamation and Department of Water Resources in implementing river restoration, but most of what we'd hoped to see was under water from the flood releases," said Ronald D. Jacobsma, Friant Water Authority General Manager.

STORAGE NEED

The extremely soggy condition had an upside, Jacobsma added, including an opportunity to view local West Side seepage under levees and resulting field-flooding problems, caused by high groundwater, of the sort that have occurred during early San Joaquin River Restoration Program interim flows.

"It also gave us a great opportunity to show the need for more storage – on the surface and underground – to capture high runoff flows when they are occurring, reduce flooding threats and gain longer-lasting water supply benefits for the environment and Friant users who are providing the river restoration flows," he said.

Meral in the past has expressed reservations on the need for new surface water storage projects.

The San Joaquin River has one proposed new reservoir project – Temperance Flat in the upper end of the CVP's Millerton Lake, northeast of Fresno.

'MUCH IN TOUCH'

Jacobsma noted that Meral, who served as Department of Water Resources Deputy Director during Brown's first administration from 1975-83, is well known for his support and involvement in the environment and its issues.

"Jerry Meral is also very much in touch with the practical problems and real needs that California water providers have to deal with for their customers," Jacobsma said.

> **'He was keenly interested in everything we showed him and points of view we presented'**
> —RONALD D. JACOBSMA

"He was keenly interested in everything we showed him and points of view we presented on surface water storage development, infrastructure needs, Delta solutions and conveyance, groundwater issues and river restoration."

TULARE MEETING

During a luncheon meeting later in Tulare hosted by the Friant Water Authority and Tulare Irrigation District, Meral listened intently as directors and managers from several Friant Division contractors of Central Valley Project water spoke.

They outlined past and present programs, along with future plans and desires.

All of the projects they discussed have been aimed at further improving beneficial water delivery and on-farm use efficiency, and the region's already extensive system of groundwater storage and water banking.

DELTA OVERSIGHT

Meral is in charge of the Bay-Delta Conservation Program, which is charged with finding solutions to the Delta's many infrastructure, environmental, water quality and water supply problems.

Meral, former Planning and Conservation League Executive Director, is again on the front line in debate over whether to build alternative water conveyance through or around the Delta. Even while many in the environmental community were opposing such a plan, Meral pushed for the construction of a controversial Peripheral Canal that was ultimately defeated by California voters in November 1982.

A renewed plan is now focusing increasingly on development of a large tunnel to bypass the fragile Delta in order to move north state water to the CVP and state Water Project pumps near Tracy.

Friant Water Authority / J. Randall McFarland

Harvey Bailey, Friant Water Authority Chairman and Orange Cove Irrigation District President, explains the importance of San Joaquin River water delivered to Orange Cove growers and city residents through the Friant-Kern Canal (background). Fifty-five participants in the Water Education Foundation's San Joaquin Valley tour also visited Friant Dam, the San Joaquin River and many other valley water features April 12-15.

ATTACHMENT K

DISTRICT AGRICULTURAL WATER ORDER FORM

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

Hills Valley Irrigation District
P. O. Box 911 - 209 So. Locust
Visalia, CA 93279-0911
Phone: (559) 732-7938

Date: May 6, 2009

Application
2009-2010 Water

Owner:

Applicant / User:

_____

_____

_____

_____

Contact: _____

Turnout #6

Telephone: _____

Previous Year Usage	110.5 af
Available Entitlement (100 % declaration)	170 af
USBR Friant Declaration 100 % Class 1, 5% Class 2	

WATER ORDER:

A. Requested Entitlement Water Supply Quantity (Less than or equal to 170 af):	_____	Acre Feet @	$ 180.00	$ _____
B. Carryover Supply Quantity: Unused supply carried forward from prior water year	NA	Acre Feet @	(not available)	$ NA
C. Supplemental Requested Quantity:	_____	Acre Feet @	(not available)	$ NA

DELIVERY RELATED COSTS:

D. Requested Water Supply Quantity	_____	Acre Feet @	$ 42.00	$ _____

DEPOSIT BALANCE DUE: (Please Add all figures in last column) **$** _____

This application is subject to the adopted Rules and Regulations for Water Deliveries.
The total amount shown above as Deposit Balance Due ***must be paid for by May 29, 2009*** *in order to continue to receive water.*

Please sign and date this application for water and remit your check for the amount shown as Balance Due.

Date: _____ , 2009 Signature: _____

Date: _____ , 2009 Signature: _____

ATTACHMENT L

DRAINAGE PROBLEM AREA REPORT

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

Attachment L is not applicable to the District.

ATTACHMENT M

DISTRICT AGRICULTURAL WATER SERVICE CONTRACT

FIVE YEAR UPDATE

WATER MANAGEMENT PLAN

HILLS VALLEY IRRIGATION DISTRICT

AGRICULTURAL WATER SERVICE CONTRACT

HILLS VALLEY IRRIGATION DISTRICT

THIS CONTRACT is entered into on the _____ day of _____ ,2009, between HILLS VALLEY IRRIGATION DISTRICT, ("District"), an irrigation district organized under the provisions of Division 11 of the California Water Code, and the undersigned landowner in the District, Pelco Sales, Inc., as a California corporation (“Water User"), with respect to the following explanatory recitals:

1. District has entered into an agreement ("Interim Renewal Contract Between the United States, The Department of Water Resources of the State of California and the Hills Valley Irrigation District Providing for Project Water Service") dated March _____, 2009, by which the District is obligated to purchase up to 3,346 acre-feet of water per year, to be delivered at the Cross Valley Canal constructed and operated under agreement with the Kern County Water Agency ("KCWA").

2. Atwell Island Water District has previously entered into a subagreement with the County of Tulare which has a similar agreement with the United States and the State of California by which Tulare County is obligated to purchase up to 5,308 acre-feet of water per year, to be delivered at the Cross Valley Canal.

3. Atwell Island Water District requested to reduce their rights and obligations under their subagreement with Tulare County and the District agreed to acquire certain of the rights originally requested by Atwell Island Water District under such subagreement. Atwell Island Water District and the District have negotiated amendments to their subagreements with Tulare County with Atwell Island Water District’s contract amount decreasing the amount of water encompassed thereby from 2,963 acre-feet to 50 acre-feet per year. District has subcontracted with the County of Tulare for said 2,913 acre-feet per year.

4. District and the County of Tulare are interested parties in and to an agreement, entitled "Memorandum of Understanding between Arvin-Edison Water Storage District and Public Agencies in Fresno and Tulare Counties for Exchange of Water," as amended by "Agreement Amending Memorandum of Understanding and Relating to the Assessment of Rights and Obligations Thereof," dated January 26, 1982, ("MOU"). The MOU

provides, among other things, for the exchange of water entitlement under the various Federal/State water service contracts in return for a specified amount of the water supply to be delivered out of the Friant-Kern Canal by the Arvin-Edison Water Storage District ("Arvin-Edison"). The MOU sets forth certain monetary obligations that must be fulfilled in certain years whether or not water is available out of the Friant-Kern Canal.

5. The obligation and ability of Arvin-Edison to deliver such portion of its Friant-Kern Canal Water to District is contingent on a variety of factors and, as a result, the water supply available to Water User under this contract cannot be deemed a guaranteed supply.

6. Water User desires to bear a defined portion of the charges to be paid by District, under the MOU, in return for the right to purchase certain of the water exchange rights available to District under the MOU.

7. The District has also entered into a defined transfer agreement with the Lewis Creek Water District, whereby the District has acquired access to 672 acre-feet of water per year for a limited period of time.

8. The land described in Exhibit "A" hereto is all the land owned by Water User in the District ("Water User's Lands").

9. All of the lands in the District are not served by a water distribution system and therefore Water User may be solely responsible for transporting water from the delivery point at the Friant-Kern Canal to Water User's lands.

NOW, THEREFORE, the parties agree:

1. DEFINITIONS

District means Hills Valley Irrigation District.

Board of Directors means the body of members duly elected or appointed as the Board of Directors of the Hills Valley Irrigation District.

Water User means the person or entity owning land within the District that has executed this Agricultural Water Service Contract.

Water Service Contract means this agreement for agricultural water service between District and Water User.

Year means the twelve-month period from and including March 1 of each year through the last day of February of the next year.

Water Service means the conditions of delivery of a supply of water as set forth herein.

Agricultural Use means use of water primarily in the commercial production of agricultural crops or livestock. Such use shall not include any human consumption of water.

Water Charge means the charge in dollars per acre-foot

that Water User shall pay for each acre-foot of water delivered pursuant to this contract, or the MOU, or offered to Water User under the terms of this Contract, as determined by the Board of Directors.

Water User's Lands shall mean the real property described in Exhibit "A" hereto by means of use of Assessor’s parcel numbers.

Benefit Stand-By Charge means the charge in dollars that Water User shall pay annually with respect to each acre of Water User's Lands, as may be determined from time-to-time by the Board of Directors.

Contract Amount of Water means the annual amount of water that the District has procured for the benefit of Water User under the terms and subject to the conditions of this Agreement.

Original Water Supply means the water supply available to District from Arvin-Edison in exchange for District's water and capacity entitlement under the MOU and the Interim Renewal Contract (that is, the contract providing for up to 2,146 acre-feet of water per year).

Hope/Ducor Water Supply means the water supply available to District from Arvin-Edison in exchange for the water and capacity entitlement sought by Hope Water District and Ducor Irrigation District as recited above (that is, the additional

1,200 acre-feet per year to be added to the Federal/State Water Service Contract).

County of Tulare Supply means the water supply available to District from Arvin-Edison in exchange for the water and Cross Valley Canal capacity assigned to District from the County of Tulare.

Interim Renewal Contract means the latest Interim Renewal Contract between the United States, the Department of Water Resources of the State of California and the Hills Valley Irrigation District, providing for Project Water Service which recognizes the water supply available to the District at 3,346 acre-feet of water per year.

2. DELIVERY OF WATER

(a) Water User shall be entitled to the first right of use of waters from the various District water supplies as follows:

(i) an undivided 54 /2,146 of the waters available to District from time to time from the Original Water Supply; and

(ii) an undivided 45 /1,200 of the waters available to District from time to time from the Hope/Ducor Water Supply as defined in the Interim Renewal Contract; and

(iii) an undivided 85 /2,913 of the waters

available to District from time to time from the County of Tulare Supply.

(iv) an undivided 24/672 of the waters available to District from time to time from the Lewis Creek Water District.

All such waters shall be delivered at the Friant-Kern Canal to the water distribution system serving Water User's Lands, and Water User shall use such waters for irrigation of only Water User's Lands.

(b) District shall have the right to the use of all waste seepage and return flow water that escapes or is discharged beyond Water User's recovery facilities, if any, and nothing contained in this contract shall be construed as an abandonment or relinquishment by District of the right to the use of any such water.

(c) At District's option, District may deliver water to the water distribution system serving Water User's lands only through a meter, which meter shall be located at the Friant-Kern Canal and shall be controlled by District. Only District employees or agents shall operate turnout valves and other diversion mechanisms and said employees shall have full authority to stop water delivery to said water distribution system when the amounts of water available pursuant to this contract have been

delivered.

(d) District will not be responsible for the control, carriage, handling, use, disposal, or distribution of water delivered to Water User hereunder outside the facilities then being operated and maintained by District. Water User does hereby indemnify and shall assume the defense of and hold harmless the District and its officers, agents and employees from any and all loss, damage, liability, claims or causes of action of every nature whatsoever, for damage to or destruction of property, including the District's property, or for injury to or death of persons, in any manner arising out of or incidental to the control, carriage, handling, use, disposal, or distribution of water delivered outside such facilities.

(e) The character and quality of water furnished hereunder may vary from time to time and District does not guarantee in any respect the character or quality of the water delivered pursuant to this contract. If, at any time during the term hereof, District determines that such water as is available is not of a quality suitable for irrigation, the actions of District to deliver water under this contract may be suspended, such actions to resume when District determines that it is once again able to deliver water of suitable quality. Any determination by District as to the suitability of the water for irrigation purposes shall

be final and conclusive. Water User agrees and acknowledges that suspension of water delivery hereunder may not necessarily suspend District's exchange obligations pursuant to the MOU.

(f) Water is furnished under this contract for agricultural purposes only. Such water is in a raw, untreated condition and as a result is considered to be unfit for human consumption without treatment. Water User agrees to use such water only for agricultural purposes.

(g) District may temporarily discontinue or reduce the amount of water to be furnished to Water User as herein provided for the purpose of such investigation, inspection, maintenance, repair or replacement as may be reasonably necessary, of any of the delivery facilities constructed for the furnishing of water to Water User, but, so far as feasible, District will give Water User due notice in advance of such temporary discontinuance or reduction, except in case of emergency, in which case no notice need be given. In no event shall any liability accrue against District or any of its officers, agents or employees, for any damage, direct or indirect, arising from such temporary discontinuance or reduction of water deliveries.

(h) In the event of any suspension, discontinuance or reduction pursuant to paragraphs 2(e) or 2(g), District will, upon the resumption of service, to the extent it may be possible

to do so and within the ability of Water User to accept the same, deliver the quantity of water that would have been furnished to Water User in the absence of such event or contingency.

3. WATER SERVICE

Because of the characteristics of the water supply that will be acquired by the District under the MOU, the water supply cannot be deemed dependable and may be offered to the Water User at times which do not suit the convenience of the Water User. The acceptance of such water by Water User will be at the option of Water User, but the Water User's refusal of delivery will not excuse Water User's obligation to pay for any undelivered water.

4. TIME OF DELIVERY OF WATER

Consistent with the availability of such water and giving consideration to requests for water service from all water users, District will schedule water deliveries and deliver water to Water User as nearly in accord with Water User's requests as is practicable and District's determination with regard to such scheduling of water deliveries shall be final and conclusive. District may require Water User, however, to make application for delivery of such water and may require compliance with reasonable, applicable rules and regulations promulgated by the Board of Directors.

5. VESTED RIGHT TO WATER/CAPACITY RIGHTS

(a) Vested Rights Regarding Original Water Supply. The parties acknowledge that prior to 1974, District was provided an

opportunity to participate in this Cross Valley Canal project administered by the Kern County Water Agency through agreement with Arvin-Edison. At that time, District had no reliable source of water. Under the Cross Valley Canal proposal, the District was to apply for and obtain a water service contract from the United States and the State of California, from the Sacramento Delta through the California Aqueduct, and ultimately to Arvin-Edison through the Cross Valley Canal in Kern County. In return and subject to Bureau of Reclamation approval, Arvin-Edison would make available to the District (and other participating districts and public entities) a portion of Arvin-Edison's entitlement to federal water from Millerton Lake delivered through the Friant-Kern Canal.

The parties further acknowledge that the District was then financially incapable of participating and otherwise unwilling to participate, in such project. However, in order that Water User might nevertheless be able to obtain the benefits of this proposed arrangement, Water User (or Water User's predecessor in interest) and other District landowners contributed the funds necessary to participate in the Cross Valley Canal project. In return and as a condition to the contribution of such funds and the acquisition of rights to water under the MOU, District and such landowners agreed that any and all water made available to

District and classified as Original Water Supply pursuant to the MOU (as may be from time to time amended) shall be made available pro rata first to such contributing landowners based on the contribution made by each such landowner.

Pursuant to the foregoing, District acknowledges, ratifies and confirms that Water User is the owner of the exchange rights held nominally by District pursuant to the MOU, which percentage of rights is the same as that set forth in Paragraph 2(a)(i). Furthermore, District acknowledges, ratifies and confirms its agreement that a like percentage of all waters made available to District from time to time from the Original Water Supply shall be made available first to Water User and no such water shall be delivered to other landowners unless waters are refused by Water User, or unless Water User otherwise consents. District agrees to take such actions as shall be necessary to insure that Water User obtains the benefit of the agreements referred to in this subparagraph (a). Water User, as owner of such portion of the capacity in Cross Valley Canal, shall be entitled to such capacity rights and, subject to such obligations in connection therewith, regardless whether water is available under the Original Water Supply and regardless of the termination of the Federal/State Water Service Contract.

This subparagraph (a) shall apply only if Water User is

entitled to a portion of the Original Water supply under Paragraph 2(a)(i).

(b) Vested Rights Regarding Hope/Ducor Water Supply.

The parties similarly acknowledge that the District was given an opportunity to acquire the Hope/Ducor Water Supply, including the rights of Hope Water District and Ducor Irrigation District in and to the capacity of the Cross Valley Canal under the MOU. District was then financially incapable of participating and otherwise unwilling to participate, in such acquisition. In order that Water User might nevertheless be able to obtain the benefits of this proposed arrangement, Water User (or Water User's predecessor in interest) and other District landowners contributed the funds necessary to participate in the acquisition of the Hope/Ducor Water Supply, including such capacity rights in the Cross Valley Canal. In return and as a condition to the contribution of such funds and the acquisition of such capacity and contract rights, District and such landowners agreed that any and all waters made available to District from time to time from the Hope/Ducor Water Supply and the Cross Valley Canal capacity rights associated therewith, shall be made available pro-rata first to such contributing landowners based on the contributions made by each landowner.

Pursuant to the foregoing, District acknowledges, ratifies

and confirms that Water User is the owner of a percentage of the Cross Valley Canal rights acquired from Hope Water District and Ducor Irrigation District, which percentage is the same as set forth in Paragraph 2(a)(ii).

Furthermore, District acknowledges, ratifies and confirms that a like percentage of all waters made available to District from time to time pursuant to the Hope/Ducor Water Supply shall be made available first to Water User, before being offered to other landowners. Water User shall be entitled to such waters and to such capacity in the Cross Valley Canal, as of right and of contract and no water shall be delivered to other landowners unless such waters are refused by Water User or Water User otherwise consents. District agrees to take such actions as shall be necessary to insure that Water User obtains the benefits of the agreements referred to herein. As assignee of such rights to such portion of the capacity of the Cross Valley Canal, Water User shall be entitled to such portion of such capacity and to the rights and obligations in connection therewith, regardless whether water is available under the Hope/Ducor Water Supply and regardless of the termination of the Federal/State Water Service Contract. Anything to the contrary herein notwithstanding, Water User may sell, exchange, lease or otherwise transfer rights made available to Water User pursuant to this Contract with the prior

written consent of the Board of Directors.

This subparagraph (b) shall apply only if Water User is entitled to a portion of the Hope/Ducor Water Supply under Paragraph 2(a)(ii).

(c) Vested Rights Regarding County of Tulare Supply. The parties similarly acknowledge that the District was given an opportunity to secure an assignment of the rights of Atwell Island Water District in and to the County of Tulare Supply, including the right to wheel such water through capacity in the Cross Valley Canal under the MOU. District was then financially incapable of participating and otherwise unwilling to participate, in such acquisition. In order that Water User and District might nevertheless be able to obtain the benefits of this proposed arrangement, Water User (or Water User's predecessor in interest) and other District landowners agreed to pay certain amounts for wheeling rights in the Cross Valley Canal. In return, and as a condition to payment of said amounts, District and such landowners agreed that any and all waters made available to District from time to time from the County of Tulare Supply and the Cross Valley Canal wheeling rights associated therewith, shall be made available to such contributing landowners in the proportions set forth in Paragraph 2(a)(iii).

Pursuant to the foregoing, District acknowledges, ratifies

and confirms that Water User is the assignee of a percentage of such wheeling rights in the capacity of County of Tulare in the Cross Valley Canal, which percentage is the same as that set forth in Paragraph 2(a)(iii). Furthermore, District acknowledges, ratifies and confirms that a like percentage of all waters made available to District from time to time pursuant to the County of Tulare Supply shall be made available first to Water User, before being offered to other landowners. Water User shall be entitled to such waters and to such wheeling rights in the Cross Valley Canal, as of right and of contract and no water shall be delivered to other landowners unless such waters are refused by Water User or Water User otherwise consents. District agrees to take such actions as shall be necessary to insure that Water User obtains the benefits of the agreements referred to herein. As assignee of such wheeling rights, Water User shall be entitled to such rights and subject to such obligations in connection therewith, regardless of whether water is available from the County of Tulare Supply.

This subparagraph (c) shall only apply if Water User is entitled to a portion of the County of Tulare Supply under Paragraph 2(a)(iii).

(d) Vested Rights Regarding Lewis Creek Water District. The parties similarly acknowledge that the District was given an

opportunity to secure an assignment of the rights of Lewis Creek Water District in and to their Friant Division Class 1 Supply, including the right to wheel such water through capacity in the Friant-Kern Canal. District was unwilling to participate in such acquisition. In order that Water User and District might nevertheless be able to obtain the benefits of this proposed arrangement, Water User (or Water User's predecessor in interest) and other District landowners agreed to pay certain amounts for retirement of designated debt of Lewis Creek Water District. In return, and as a condition to payment of said amounts, District and such landowners agreed that any and all waters made available to District from time to time from the Lewis Creek Water District shall be made available to such contributing landowners in the proportions set forth in Paragraph 2(a)(iv). Pursuant to the foregoing, District acknowledges, ratifies and confirms that Water User is the assignee of a percentage of such rights in the Lewis Creek Water District agreement, which percentage is the same as that set forth in Paragraph 2(a)(iv). Furthermore, District acknowledges, ratifies and confirms that a like percentage of all waters made available to District from time to time pursuant to the Lewis Creek Water District Supply shall be made available first to Water User, before being offered to other landowners. Water User shall be entitled to such waters as of

right and of contract and no water shall be delivered to other landowners unless such waters are refused by Water User or Water User otherwise consents. District agrees to take such actions as shall be necessary to insure that Water User obtains the benefits of the agreements referred to herein. As assignee of such rights, Water User shall be entitled to such rights and subject to such obligations in connection therewith, regardless of whether water is available from the Lewis Creek Water District Supply.

This subparagraph (d) shall only apply if Water User is entitled to a portion of the Lewis Creek Water District Supply under Paragraph 2(a)(iv).

6. PAYMENT FOR WATER

(a) Water User shall pay such Water Charges and Stand-By Charges as may be imposed from time to time by the Board of Directors; provided, however, that the costs and expenses, including applicable costs and expenses under the MOU, applicable to the Original Water Supply and the County of Tulare Supply, shall be borne by the Water Users entitled to each such supply, respectively. Water User understands and agrees that charges may be imposed and collected for water years in which little or no water is provided by District to Water User. Water User

understands and acknowledges that (s)he must pay such charges under those circumstances because expenses of the District, including substantial payments under the MOU, are incurred in water years even though no water may be available to the District. Water User further agrees and acknowledges that Water User must pay any and all charges levied by the District for service to Water User's land in the event that any tenant, agent or representative of the Water User fails to do so, any contract or agreement to the contrary notwithstanding. Payment shall be made at or before the delinquency date set forth in District's invoice to Water User (which delinquency date shall be not less that 15 days after the date the invoice is mailed).

(b) The charges provided for herein are authorized by Sections 22280 and following of the California Water Code. Nothing contained herein shall limit the power of District to levy other charges or assessments from time to time, as provided in said Water Code and to collect such amounts as may be found necessary by District to meet its financial requirements.

(c) No water will be delivered to Water User if such Water User is delinquent in the payment of any charges under this contract or any other charges or assessments levied as permitted by law.

(d) In the event that any charge hereunder or any

obligation of Water User arising from this contract becomes delinquent, then it shall bear interest, at the lesser of twelve percent (12%) or the maximum permitted by law, be subject to penalty and shall become a lien on Water User's Lands. Furthermore, in the event District engages counsel to collect any delinquent amounts, Water User shall pay all costs of collection including reasonable counsel fee and costs.

7. NOTICE

Any notice or announcement which the provisions hereof contemplate shall be given to one of the parties hereto by the other, shall be deemed to have been given if deposited in the United States mail, on the part of District in a postage-prepaid envelope addressed to Water User at Water User's most recent address on the books of the District and on the part of Water User to District at the address shown below its signature line, or such other address as from time to time may be designated by written notice from one party to the other; Provided, however, that this article shall not preclude the effective service of any such notice or announcement by personal delivery or other means.

8. TERM OF CONTRACT

This contract shall be effective on the date appearing on page 1

and shall remain in effect for fifty (50) years or until expiration or earlier termination of a water supply contract or the MOU (as may be amended, renewed or extended), whichever occurs first. This contract may be otherwise amended, renewed or extended on terms and conditions mutually agreeable to the parties.

9. LIEN AND AGREEMENT

(a) The parties to this Contract do hereby declare that: the water to be furnished under this agreement and the right to such water, are intended to form a part of the appurtenances to Water User's Lands described in Exhibit "A" to this Contract; such water and right to water are of direct benefit to Water User's Lands; the covenants of Water User to pay for said water and for said right to water and other obligations of Water User under this contract, shall run with and bind Water User's Lands. Water User does hereby expressly create a lien upon Water User's Lands to secure the obligations of Water User under this contract, which lien shall bind Water User's Lands despite any transfer, hypothecation, or alienation thereof.

(b) The provisions of this Contract shall apply to and bind the successors and assigns of the parties hereto; and nothing in this Contract shall be construed as affecting in any manner Water User's right to transfer or assign ownership of Water User's Lands, subject however, to the lien and obligations herein established. Provided, however, that Water User may assign his rights and obligations hereunder, or any part thereof, only to another landowner within the District and only for irrigation of such landowner's lands within District and furthermore only after written permission of District, including

terms and conditions of the assignment acceptable to District, is first had and obtained. District shall, in addition to any other terms and conditions, require that the new landowner execute a new agricultural water service contract with respect to such landowner's land, which agreement shall be likewise recorded with the appropriate county recorder.

10. COMPLIANCE WITH LAWS, CONTRACTS AND REGULATIONS

Water User shall comply with the applicable provisions of the Reclamation Act of June 17, 1962, and the Reclamation Reform Act of 1982, and all future acts amendatory thereof or supplementary thereto and with District's Interim Renewal Contract together with any amendments thereto and such other lawful contracts as District may execute with the United States and/or the State of California, Provided, however, that if Water User, at any time during the term of this contract, does not comply, District's obligations to deliver water to Water User under this contract shall be suspended for as long a period of time as Water User remains in noncompliance, but all other provisions of this contract, including the obligation of Water User to pay Water Charges and/or Stand-By Charges, shall continue in full force and effect. Water User acknowledges and agrees that District may, in the discretion of the Board of Directors, elect to be covered by the discretionary provisions of the

Reclamation Reform Act of 1982.

11. GENERAL

(a) Any waiver or claim of waiver at any time by either party to this contract of its rights with respect to a default, or any other matter arising in connection with this contract, shall not be deemed to be a waiver with respect to any subsequent default or matter.

(b) Nothing contained in this contract shall be construed as in any manner abridging, limiting, or depriving District of any means of enforcing any remedy, either in law or in equity, for the breach of any of the provisions hereof which it would otherwise have.

(c) Where the terms of this contract provide for action to be based upon the opinion or determination of either party to this contract, whether or not stated to be conclusive, said terms shall not be construed as permitting such action to be predicated upon arbitrary, capricious or unreasonable opinions or determinations, and all such actions shall be taken in good faith.

(d) This contract or a memorandum hereof may be recorded by either party.

(e) Captions accompanying sections of this contract are for convenience of reference and do not form a part of this

contract.

HILLS VALLEY IRRIGATION
DISTRICT

_____
Date of Execution

By:_____
President

By:_____
Secretary

P. O. Box 911
Visalia, CA 93279-0911

WATER USER

Pelco Sales, Inc.

_____ By:_____

Date of Execution _____

EXHIBIT “A”

LANDS OWNED WITHIN DISTRICT BOUNDARIES

Assessor’s Parcel Numbers	Acres
185-112-20S	56.87

EXHIBIT “B”

WATER ENTITLEMENT DISTRIBUTION

Entitlement Holder	Original	Hope/Ducor	Tulare County	Lewis Creek
Otis Booth Living Trust	200	80	1,600	
Loren Booth	215	520		336
Stephanie Booth - Murray	200			
Robert V. Brumm	10			
Cabot/Corrin Ag, LLC	50		642	83
Calarco, Inc.			170	20
Eric & Kim Christensen			14	2
Larry & Dorothy Edwards		240		29
Jose A. Gutierrez	6			
Mission AG, LLC	66	55	105	27
Thomas C. Mulholland	120			
Charlotte Pavelko	80			
Pelco Sales, Inc.	54	45	85	22
ROHO	160			
Donald A. Schroeder	160	160		124
Schroeder/Reidell	425		297	
Mountain View Citrus, LLC	160			
Douglas Singer		100		
VCPG Ranch Partners, LP	240			29